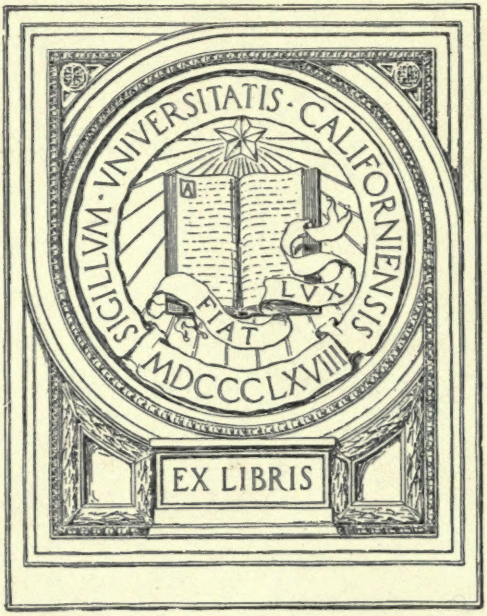
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SIMPLE EXPERIMENTS IN PHYSICS.

BY VOLNEY RATTAN.

[Professor of Natural Sciences, San Francisco Girls' High School.]

PRESSURE OF THE AIR.

You have all heard or read that the air presses with great weight upon the earth. Many of you do not believe the story about the pressure upon a man's body being many hundred pounds. Probably none of you know that the air has weight as you know that water is heavy. You cannot handle it directly as you can water; but, indirectly, you have felt its weight when pushing your way against a strong head wind. Now, although our experiments will not make you *feel* the weight of the air, they will enable you to *see* its weight as clearly as a pair of scales can show you the weight of a stone.

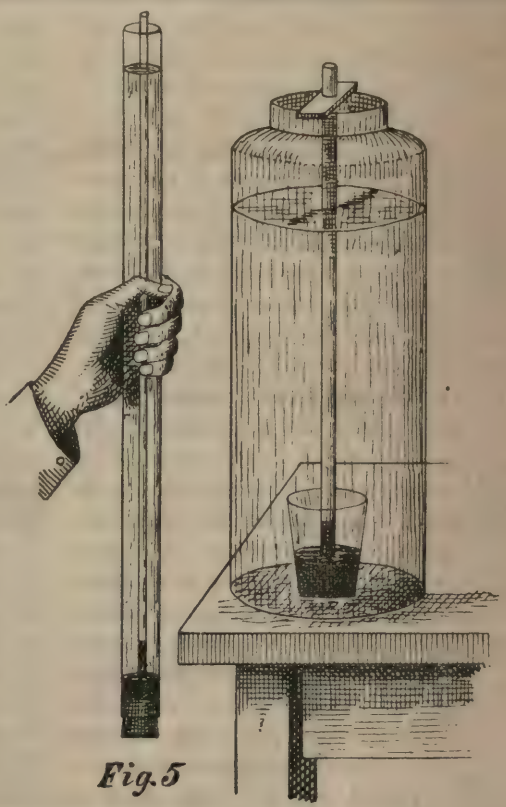


Fig. 5

The tumbler in this jar (Fig. 5.) contains mercury, and the glass tube, supported by a bit of wood on top of the jar, reaches nearly to the bottom of the tumbler. Observe that the mercury is as deep inside the tube as outside. Now what would be the effect of pressing down evenly all over the surface of the mercury outside the tube? John thinks it would be squeezed up into the tube. We shall presently see whether his prediction is right. I have now partly filled the jar

with water. You see the mercury has risen about half an inch in the tube. The water is near seven inches deep over the mercury, and its pressure upon the mercury has, as John says, squeezed the mercury up the tube half an inch. I pour in morewater, and the mercury rises a quarter of an inch higher. With this wire, in which I have filed deep notches an inch apart, and smaller ones to mark the quarters of an inch, I find the depth of the water over the mercury to be a little more than ten inches, while the mercury in the tube is three quarters of an inch higher than the mercury outside. Evidently, if the jar was tall enough, we might send the mercury up three-fourths of an inch higher by pouring in ten inches more of water. I now lift the tube out of the jar. As I slowly replace it, water enters; and lastly, mercury. The water stands at the same height inside and outside of the tube; so does the mercury. The ten-inch column of water in the tube is doing the work which the shorter column of mercury did before the water was admitted. That is, it balances the pressure of the water outside. By blowing into the upper end of the tube I force the water through the mercury. Again you see the mercury rise to its former height. Here is a smaller tube, which I put beside the other, and drive the water out as before. The mercury rises to just the height of the column in the larger tube. It makes no difference, then, whether we use a large or a small tube; the height of the column determines the pressure. Here is a large glass tube which I have stopped with a cork. I pour in a little murcury, and put a small tube into it. I shall pour in enough water to raise the mercury one inch in the small tube. As nearly as we can determine with the aid of our wire, 13½ inches of water presses the mercury up one inch in the small tube. Now suppose these tubes were long enough to reach above the house top, and the column of mercury measured forty inches. Could we not tell the height of the column of water? Each inch of mercury balances 13½ inches of water. The problem is easy. What would be the pressure of such a depth of water upon each square inch of the bottom of the containing vessel? Please give me your whole attention while I lead the attack upon this problem. We have seen that the size of the tube does not affect the height of the mercurial column. Suppose the column of mercury is just one inch sqnare; it would press upon a base of one square inch with all its weight; or, in other words, its weight would be the measure of its pressure upon one square inch. Since a cubic inch of mercury weighs about half a pound, the forty cubic inches would weigh about twenty pounds. We have seen that a column of water 13½ times as high as a column of mercury of the same diameter weighs just the same for it exerts the same pressure upon its base. Now imagine the water which is balanced by the mercury divided up into columns one inch square. Each one must weigh the same as the column of mercury; that is, the pressure upon each base, or each square inch of their combined bases, is just equal to the weight of the mercury. But you do not see how a small column of mercury can do as much work as a large one of the same height. Why, it is like a few men guarding a narrow pass against a multitude; only a few of the multitude can get at the guard. See, this tube is held with one end three inches below the surface of the water in the jar. The water in the tube does not weigh a tenth as much as the water which surrounds it; yet the smaller mass effectually holds in check the larger mass. The water outside cannot press upon a surface larger than the base of the column inside. Think of the water in the jar as made up of small columns. Only one of these can

get at the column in the tube ; really, only one of these is balanced by the latter ; the others are spectators of the equal contest.

We are now prepared, I think, to weigh the air. I remove the tumbler of mercury from the jar. Now if we had a tube long enough to reach above the top of the air, and could handle it, we might weigh the air just as we did the water. Since this is impossible, we must proceed in a different way. This glass tube is closed at one end ; I put the open end into the tumbler. The pressure of the air cannot force mercury into the tube because it is full of air. If we remove the air there will be nothing to keep the mercury from entering—there will be no pressure upon the surface of the mercury inside of the tube. This I can easily do by filling the tube with mercury. I tap the tube repeatedly to loosen bubbles of air which persist in clinging to the glass. Placing my finger over the open end of the tube, I invert it ; and with my finger still upon it, I put the end of the tube below the surface of the mercury in the tumbler. Now let us carefully note all the conditions of this experiment. The air cannot pass upon the mercury in the tube, because the glass of which the tube is made is strong enough to resist the pressure. The mercury in the tumbler is exposed to the air. When I remove my finger, the mercury can run out of the tube if the air does not press upon the surface of the mercury outside. Suppose the pressure equal to that of the water in the last experiment. We would expect all but one inch of the mercury to run out. Possibly the air presses hard enough to hold up our entire column—thirty-four inches—of mercury. We shall see. Air, push your hardest. Mercury, do your duty. There ! The contestants sway back and forth in the struggle, and finally the mercury makes a stand at --let us measure--about twenty-nine inches, leaving an empty space of five inches. Now there were a few small bubbles of air which I could not drive out. These worked against the air outside, so the real pressure must be more than our experiment indicates. When all the air is driven out it has been found that where the air is deepest—at the level of the ocean—mercury will stand about thirty inches in a tube like this. The pressure of the air, then, must be about fifteen pounds upon each square inch. This tube with the tumbler and mercury is a barometer.*

THE TEOCALLI, OR SACRED HIGH PLACES OF THE ANCIENTS.

BY PROF. G. V. LE VAUX.

(Nevada, California.)

TWO PAPERS—PART I.

It is a matter of no little surprise to students of nature and human progress to find in a world, sometimes called new, architectural structures, political institutions, and religious ideas, long supposed to be the peculiar property of the older continents. These evidences of an ancient civilization, more or less perfect, are strikingly abundant in every State from Canada to Patagonia, and cannot fail to have a very important bearing on the, as yet, unwritten ethnological history of America. But of all the aboriginal monuments and relics of either continent, none are more eminently suggestive than the *Teocalli* or "sacred high places," and none are more conclusive of the original unity or natural connection of the several races of mankind.

The early poets believed, or pretended

* The tube should be of thick glass, with a bore of at least a quarter of an inch. It would be best to have a smaller vessel than a tumbler for the mercury. The deeper the jar the better. About three pounds of mercury will be required. A good final experiment would be to put the barometer into a bucket and note the rise of the mercury as water is poured into the bucket.

to believe, that mountains were created on the earth by the goddess Gaia, that they might be the favorite abode of the gods. It was this idea, doubtless, which induced the ancients to regard high hills as the most eligible place for public or private worship. Men looked up to the hills for divine aid in their worldly difficulties, always regarding them as the abiding places of those superior beings who overlooked and directed the destinies of nations and individuals. "I will lift up mine eyes unto the hills," saith the Psalmist, "from whence cometh my help" (Ps. 121). The Hindoos tell us that *their* deities dwelt on Mount Merou; Jove and his colleagues ruled the Grecian world from Mount Olympus, and even Jehovah himself once spoke to mankind, in words of thunder, from the summit of Mount Sinai. The ancient Chinese proferred their petitions to the Deity, often offering sacrifices on mounds of stone, raised on the summits of mountains, believing that such eminences were nearer heaven than the valleys, and that it was man's duty in prayer to approach as near as possible to the portals of God's house. Barak, king of Moab, and Solomon, king of Israel, favored this practice. Both of these rulers, as well as Jereboam and his successors, seem to have encouraged sacrifices on "high places"; nay more, we find God himself instructing Abraham to go to a certain mountain (supposed to be Moriah) and there to offer up his son Isaac. (See, Gen. xxii: 2.) The Ghebers, like all the fire-worshipers of the East, sacrificed on high hills; and the Celts of Western Europe followed a similar practice.

The first altars were doubtless heaps of mud or stones raised on the summits of hills or artificial mounds. These mounds were formed chiefly of earth and unbaked bricks; but as man advanced in knowledge and civilization his architectural ideas improved, and he gradually learned to coat his sacred "hills" with stone, more or less skillfully cut and regularly arranged, each row receding inwards as the elevation increased, until at last a well shaped pyramid stood out to view—the footstool of a "god" or the tomb of an "unforgotten brave." These structures often took a spiral form—a winding road-way consisting of several stages, leading to the summit. The number of stages were usually either three, seven, or nine, according to the number of heavens, or degrees of excellence, supposed to exist in the spirit world. The Scandinavians and kindred European races believed in the existence of nine worlds and nine heavens—the highest heaven being the special abode of the Supreme Being. Boturini informs us that Nezahual-Coyotl, king of Tezcuco, (Mexico) built a tower of nine stages, to indicate that there were "nine heavens between earth and the abode of the Creator." The king, he says dedicated this tower "to the One Almighty and all merciful God, who has his seat above the heavens." It seems to us that this ancient American pagan was not far from being a Christian.

In both the old and new worlds, we find it was the custom to erect mounds or "high places" over the tomb of some deified hero. The center of the mound, in such cases, was hollowed, and supposed to be the special home of "the spirit of the deceased. This hollow space or cave was therefore regarded as the most holy place." But few of these mounds and caves have been found in Canada or the Northern States. They are, however, very numerous in Central America, Arizona, and the Gulf States. The Indians in these regions call the caves "The houses of the Great Spirit," whilst they call the mounds "the hills of God." In the eastern as, well as in the western world, these mounds taphos, or barrows, are always regarded with additional reverence if supposed to contain the bones or other relics of some

god, hero, or martry. This arose, probably, from the common idea that the soul of the dead constantly hovered over the remains of its former tenement. In proof of this we may say that the tomb of Belus, Bel, or Baal, at Babylon, was also the temple of that god; the tomb of Calista, at Ephesus, became the temple of Diana, and the tomb of Cecrops, at Athens, became the site of the Parthenon. Temple-tombs or "high places" soon became general when men once adopted the idea that the soul lingered near the body after death; for what place so appropriate for the worship of the good and great as that in which the spirit was supposed to keep watch over the lifeless clay of its former habitation. The temple of Bel at Babylon is supposed to have been "the model temple-stone" to the races of succeeding ages.

During the early ages, when men ranged the world at will, and had no fixed habitation, their natural or inherited desire to worship on the hill tops was easily gratified; but when they became agriculturists, instead of being hunters and shepherds, they established themselves on the plains, and, as might be expected, when they could not go to the mountains they raised artificial substitutes, or mounds. On these mounds they at first erected altars, and afterwards enclosed the same in the temples. As Faber well observes, "whenever the early idolaters, in the course of their migrations, happened to occupy a flat country, they would be procluded from the nature of the place from solemnizing their rites on the top of a hill; therefore, if they wished to retain them, art must supply the deficiency. This would be done, either by throwing up large tumuli of earth, or building a temple in the form of a mountain, which should rise conspicuously above the surrounding plain; and this practice, once adopted, it would not unfrequently be carried into countries where it was really superfluous."

"High places" do not seem to have been prohibited amongst the Hebrews until after the erection of the temple. Sacred history informs us that the Israelites built themselves "high places in all their cities"; that Hezekiah "removed the high places"; that Manasseh built them up again, and that Josiah "brake down the high places of the gate." (See, II Chron. xxxl: 10, and II Kings, xxiii: 4–8.) The old Scandinavians and Danes built high places in all their districts or "parishes." Many relics of the practice are found even in Iceland, where the Norwegian colonists built the gigantic *Helgafels* or "Holy Mount," on which no one dared to look until he had undergone certain purgations in the form of washing and perfuming—a mountain which is still the wonder of the north, and whose sacred precints it was death to invade. This reminds us of the fact that the Israelites were prohibited on pain of death from crossing, or even touching, "the border line at Mount Sinai." (See, Exodus, xix: 12–15.) Near "the Holy Mount" of Iceland is "the circle of Judgment," where the people meet for united prayer and praise, "even to this day." The Ghebers and Druids—our remote ancesters—were equally zealous in guarding the sanctity and privacy of "the holy places" dedicated to the gods.

(END OF FIRST PAPER.)

THE TABLES AND LONG DIVISION.

BY E. B. GAMBEE.

[Principal of Mendocino Grammar School.]

In a text-book entitled "First Steps Among Figures," recently published by Prof. L. N. Beebe, there are presented many new features in teaching primary arithmetic, some of which I propose briefly to notice in this article. The child is made familiar with the meaning or value of the digits by the "Grube Method"; then, in-

stead of presenting the tables in addition, subtraction, multiplication, and division in the usual way, which if learned as given, are known only by "rote," and the child, to determine the product of 4×6, commences with 4×1 and runs over the table in mind till he comes to 4×6, when he announces 24 as the result; instead of this, the author suggests the following, which he has used for ten years, and which I have found of great service:

a	*b*	*c*	*d*	*e*
415	324	153	624	136
123	412	345	123	412
538	736	498	747	548

This might be called the 6's, as 6 is the greatest quantity to be added. The teacher writes the above upon the blackboard, and the pupils learn it; when called to class, the "sums" are erased, and the pupils may be called upon to begin with the period designated *d*, and proceed to the right. Nor is this all; the pupil having said 2 and 1 are 3 immediately says 2 from 3 leaves 1. Thus are presented addition and subtraction in their contrasted relations. In a manner somewhat similar, are the relations of multiplication and division recommended to be taught. We might use the table already given for multiplication and division:

a	*b*	*c*	*d*
3 5 2	313	240	132
1 2 3	012	415	231
3 10 6	016	840	292

Here, the pupil having said 4 times 2 are 8, says 4 into 8 2 times. But there are many who will no doubt object to thus dividing after multiplying. But let them first try it. The author, however, has in no case relied upon teaching subtraction and division as above indicated, but prepares tables for each of the four fundamental operations.

In subtraction, the pupil having said, 2 from 5 leaves 3, immediately says 2 and 3 are five; and in like manner in division he proceeds to multiplication. Any series or table which may be constructed for addition will answer for multiplication, and one having been prepared for division will serve in subtraction. A subtraction table should be written upon the board, thus:

a	*b*	*c*	*d*
736	498	12 15 11	15 13 14
412	345	9 8 7	9 4 7
324	153	3 7 4	6 9 7

And division, thus:

a	*b*	*c*	*d*
42 54 32	24 63 16	40 30 63	48
7 6 4	8 9 4	5 6 7	8
6 9 8	3 7 4	8 5 9	6

It will, of course, be understood that these tables which I have given to illustrate the method are by no means those first given.

In arranging numbers for addition and multiplication, the teacher may find it difficult to avoid repeating certain combinations: this difficulty is readily avoided by disarranging (do not take them in their order) the numbers which are to form the *upper* line, and write *one* more than there are in the *lower* line, the figures in the lower line being written in their order, thus:

Upper line—9 6 4 7 8 5 3
Lower line—4 5 6 7 8 9

Now, by repeating the upper line *six* times and the lower one *seven* times, we will have combinations entirely promiscuous, and no two the same.

There is one more method to which I would call attention. I refer to the method of teaching long division, for I believe this is a sort of "Gordian knot" with teachers generally. Here I will let the author speak for himself.

"Teach the pupils that the first step in solving an example in which the divisor is greater than 12, is to place a comma after

the first figure in the divisor, as in the example, 5,02)73245. As in short division, we cannot divide the whole of a large dividend at once, so we cannot in long division. The next step is to find how much of the dividend we will divide at first. See if the first figure of the divisor is less than the first figure of the dividend, or whether it is greater. In the example given it is less (5 being less than 7). Teach the pupils that when it is less, they are to count as many figures in the left of the dividend as there are figures in the divisor and place a comma after the last figure. In the given example there are three figures in the divisor, so count 3 figures in the left of the dividend and place a comma there, the example becomes 5,02)732,45.

"Require the pupils to take these two steps (and no more) with the following examples, first placing them in form for divding. [Here the author gives eight examples.]

"Teach the pupils that if the first figure of the divisor is greater than the first figure of the dividend we count one *more* figure in the dividend than there are figures in the divisor, in order that the part we take may be large enough to contain the divisor. In the example, 687531÷7342, the first figure of the divisor, 7, being greater than the first figure of the dividend, 6, we count one more figure in the dividend than the 4 figures there are in the divisor, and the example with these two steps taken becomes 7,342)68753,1. Require the pupils to take these two steps with the following examples, and more if they are needed, to make the entire class familiar with these steps. [Here the author gives seven examples.]

"The next step is to count the number of figures at the right of the comma in the divisor, and count the same number of figures at the left of the comma in the dividend, and place a comma before the one counted which is farthest to the left; thus, in the example, 34276÷403, the first step is 4,03)34276; the second step, 4,03)3427,6; the third, 4,03)34,27,6. Require the pupils to take these steps (and no more) with the following examples. [Here ten examples are given.]

"In the example, 631663÷201, which, after the three steps is 2,01)6,31,663; the next step is to see how many times the number to the left of the comma in the divisor is contained in the number at the left of the first comma in the dividend: 2 is contained in 6 3 times. The example becomes 2,01)6,31,663(3. Next multiply by this quotient figure, placing the first figure of the product under the figure before the last comma, thus:

2,01)6,31,663(3
603

"Next step, see if you can subtract. (Teach pupils to look at the left hand of the number to see whether they can subtract.) Next, subtract."

The author follows the operation through, providing step by step for every difficulty, and presenting them one at a time. The Teachers' Edition was prepared by the author for the use of his assistant teachers, and is especially designed to furnish the necessary first steps, great care being taken to present but one difficulty at a time. The examples are copious, varied, and progressive. As it is largely devoted to the method of instruction, justice cannot be done the book, nor can even a cursory review of all the methods be given.

A SCHOOL AND SCHOOL-MASTER OF YE OLDEN TIMES.

BY GEORGE W. MINNS.

[Concord, Mass.]

At this time, when, by Centennial celebrations, the past is made to move before our eyes as a panorama, in which appear not only the heroes of the Revolution, but also men eminent in any station of life; when old houses are looked at with great

interest; when the "oldest inhabitant" is urged to relate again his stories of old times, manners and customs, and almost every New England town has its tales to tell of ancient worthies who became notable through learning, wit, ability, or eccentricity; I have thought that an account of a school, the Dummer Academy, very famous in its day, and of its preceptor, the no less famous "Master Moody," might not be unacceptable. While the merits of "The Old Arm-chair," "The Old Oaken Bucket," "The Old Meeting-house," and "The Old Parson," are said or sung to not indifferent ears, let us not forget "The Old Schoolhouse" and "The Old Pedagogue."

Dummer Academy, founded by the generous provision of Gov. Dummer, in 1763, is situated in the town of Byfield, Massachusetts, five miles from Newburyport. The Boston Latin School is perhaps the oldest classical school in the country; it dates from 1635, and is older than Harvard College. Dummer Academy is the oldest boarding school in New England, established to fit boys for college. It is eighteen years older than the famous academies in Andover and Exeter. It is in existence still, though not flourishing, and on the twelfth day of August, 1863, the hundredth anniversary of the school was celebrated by prayer, praise, public discourse, and all due social festivities. On this occasion, Mr. Nehemiah Cleveland, one of its former Preceptors, delivered an admirable and highly entertaining discourse, to which I am indebted in the preparation of this article.

Five hundred and twenty-five boys were members of the school during Master Moody's administration, which lasted twenty-seven years, and of these the only survivor, Deacon Jonathan Perley, was sitting on the platform during the Centennial exercises, and at the request of the orator of the day rose and stood for a moment. He was eighty-five years old.

The names of many eminent men appear among the graduates: Chief Justices Parsons and Sewall, Judge William Prescott, Professors Willard, Webber, Parker, Cleveland, U. S. Senator Rufus King, Samuel Phillips, a chief agent in establishing the kindred academies at Exeter and Andover; the famous Commodore Preble, Dr. James Jackson, a venerated name in Boston; his distingnished brother, Patrick Jackson, one of the principal founders of the city of Lowell, and a multitude of others, in their own day at least, well-known to fame. Among the alumni of more recent times I must mention the names of Mr. Benjamin A. Gould, distinguished for his services as head master of the Boston Latin School, and Mr. George B. Emerson, who established a school for young ladies, which long stood at the head of such institutions in our metropolis. Mr. Emerson, at quite an advanced age, feels now as much interest in the cause of education as the most zealous youthful teacher.

Samuel Moody, who was transferred from a grammar school in York, Maine, to the mastership of the Dummer Academy, came of a family that might well be called remarkable. For generations the Moodys were famous no less for their eccentricities than for their zeal and ability as preachers. "Faithful Moody," the grandfather of the schoolmaster, was noted through all New England for exalted piety, implicit faith, and intense oddity. When seventy years old he went as chaplain to the American army on the celebrated Cape Breton expedition. When Louisburg was captured, the officers of the army and navy dined together. Some of Mr. Moody's friends, who knew his partiality for long services, were apprehensive that he would be so long asking a blessing that the food would get cold before they could begin eating it. But, when dinner was ready all that he said was:

"O Lord, we have so much to bless thee for we must refer it to eternity, for time is too short; so bless our food and fellowship for Christ's sake."

This became celebrated as Moody's *long* blessing.

One time, when going to preach for a brother minister, he was told by the latter that he was very much ashamed of a habit the people had of leaving before the meeting was closed. After announcing the text, Moody looked round, and said: "My friends, I am going to preach to two sorts of folks to-day—saints and sinners. Sinners, I am going to give you your portion first." He then went on and preached to them as long as he thought proper, and then paused, and said: "There, sinners, I have done with you now; you may take your hats and go out of the meeting-house as soon as you please."

Of course no one availed himself of the the permission.

This "Faithful Moody" was no more of a phenomenon in those days than his son Joseph, known throughout the country as "Handkerchief Moody," so called from his never appearing in public without a mysterious bandanna drawn before his face. In the pulpit he would turn his back to the people, turn up his handkerchief and read a printed sermon; but when he prayed, he would turn down his handkerchief and face the congregation. This use of the uncouth veil was ascribed by some to remorseful grief for having in early life accidentally killed a beloved comrade. The reason assigned by himself was his impression that his countenance was naturally and terrifically stern, and that this was a serious disqualification in one who was professedly a bearer of good tidings. What is well known of him is, that from the hour he entered the pulpit his mind began to grow unsettled, and a miserable hallucination, like that which tormented the poet Cowper, took possession of his soul. The incident of the handkerchief is made the foundation of Hawthorne's weird story, "The Minister's Black Veil."

This amiable monomaniac was the father of the preceptor, Samuel Moody. This glance at the family tree shows that it was no common current that ran in his veins, and accounts in some measure both for what was healthy and for what was morbid in his organization.

Let us imagine we are looking into the old school-room one hundred and fourteen years ago. We see an old gentlemen with a large and somewhat coarse exterior, sitting at a desk, in a loose, large-sleeved woolen gown, and with a tassled cap on his head. That is the famous Master Moody. Why did all his pupils speak of him with so much affection and pride? In what art or charm lay the secret of his wonderful success? The inquiry is one of interest to every teacher. At the outset it must be confessed that Mr. Moody's scholarship did not extend over a wide range of subjects. To mathematics and natural science, to common arithmetic even, he made no pretension, and those branches were never taught by him. He read the French language with ease and accuracy, but his pronunciation was by no means Parisian. It was in Latin and Greek, especially the former, that his strength as a scholar and teacher mainly lay. There is no reason, however, to suppose that he had read many ancient authors—still less that he was in the habit of making excursions in the flowery fields of Greek and Roman literature. To fit his boys for college, and to fit them well, was the scope of his ambition. His acquaintance with the text-books necessary to this end was minute and thorough. Within those limits no question of translation, of syntax or of prosody ever found him unprepared. These habits of accuracy, of readiness, and of freshness, he kept up by unremitted application. He was even in

the habit of studying the French and Latin dictionaries in regular course from A to Z. He made all his boys learn the Latin and Greek Grammars, which contained much less matter than now. There was no escape. From the first lesson to the last, in translating, every boy was obliged to learn every thing about every word of every lesson. The effect of this thoroughness was what all good scholars would expect.

There was no lesson which he urged more frequently on his boys than that of resolute confidence in their own abilities. *Crede quod possis et potes* was the cheery, soul-strengthening maxim which he had constantly on his lips, and which no pupil of his ever forgot. But he did not commit the mistake of trying to turn John Smith the scrub-oak into John Smith the mammoth tree. He was content to cherish John Smith the bud into John Smith the blossom. Some of his pupils he classed among the *exquovis lignos*, as he called them, from the well-known proverb, "Not from every wood is a Mercury made." He thought it much better to do a few things well than many things badly. No solicitations of parents or trustees could compel him to promise, much less to undertake, the absurd task of carrying young boys through the whole circle of sciences. He had the good sense to see that quality is infinitely more important than quantity.

His discipline is said not to have been always judicious. Wayward and impulsive, he sometimes failed to control himself. But the young can forgive even the passionate outbreaks of an honest, kindly, whole-souled instructor. For the indolent and vicious, he had a diversified list of penalties, some of which were amusing to the lookers-on, if not to the culprits. He would sometimes allow his scholars to close their books, while he told some diverting story, after which there would be a saturnalian license of the tongue—the master himself transferred for the moment into a laughing, rollicking boy. And then a single tap of his finger would quell the uproar, and put order, duty, reverence, again upon the throne.

His views of order in a school-room differed from those which usually prevail. Silence there, he thought, was more distracting than noise. Accordingly, he not only permitted, but encouraged his scholars to study audibly. The buzz of sixty or seventy boys loudly conning their various tasks, not only filled the room, but could be heard at some distance from the house. It might be thought that under the cover of such a hubbub there must have been a deal of talk and play among the boys. But so quick was the master's ear, that he seldom failed to detect the unlawful tone or noise, while his equally quick eye and hand soon arrested the offender.

An amusing instance of his way of dealing with boys is told in reference to Edward Preble, one of our early naval heroes. Mr. Moody generally honored his pupils with the prefixes borne by their fathers. Young Preble, whose sire was a brigadier, was falsely charged with some offence; the master, believing him guilty, seized the fire-shovel, rushed rapidly to the place where Preble sat, and brought it down with great force and much show of passion very near to the boy's head. Then, returning to his seat, the look of anger all gone, he pleasantly said: "Boys, did you observe the Brigadier when I struck? He's innocent. He never winked. He'll be a General yet."

A native of France, who had been engaged to teach the boys the art of dancing, came on the ground, and Mr. Moody accompanied him to the school-room with a view to introduction. Having reached the open door, Moody made signs to Monsieur that he should pass in. The polite Frenchman shrugged his shoulders, and declined to go first. Moody insisted that he should proceed, and he persistently refused. At

last, the master's patience gave way, and seizing the poor man by the collar of his coat and the slack of his trowsers, he projected him far into the room.

From all that we can gather of Master Moody's person, disposition, aud habits, we should hesitate to consider him qualified to shine in general society. But in his school he was in his own element. There, he is said to have possessed that easy power of command which marks some men as if "born to rule"—that liveliness of feeling, thought, manner, and speech which commends manhood to boyhood; a professional zeal bordering on enthusiasm; a sturdy will, persevering energy, and evident sincerity. He was punctual, upright, just, and benevolent. No wonder the boys believed in him and loved him; as he set them the example of the qualities which he required in them—promptness, exactness, industry, fidelity, truth. He touched the hearts of boys, because in his own large heart, which was always fresh and young, he sympathized with them in both their enjoyments and troubles.

In the good old times boys were flogged when they did wrong. This was undoubtedly the practice of Master Moody, but I do not find that he was ever accused of tyranny or undue severity. His methods of teaching and of discipline were like those of the old English schools; but he was never guilty of that severity, one may say ferocity, which characterized many of his contemporaries in the old country, and which has not entirely disappeared even at the present time. One is amazed that such a principal as the Rev. James Bowyer, of Christ's Hospital, the Blue-coat school, could have been retained in office. He well deserved the epithet "*plagosus*." He was head master when Coleridge, Lamb, Hunt, and De Quincey attended the school. De Quincey said: "The man knouted his way through life from bloody youth up to truculent old age." Coleridge, when he heard of this man's death, said: "It was lucky the cherubim who took him to heaven were nothing but faces and wings, or he would infallibly have flogged them by the way."

At the recent dinner of the Latin School Association in Boston, the Hon. Charles Francis Adams stated that, when ten years of age, he attended, in London, a school containing about three hundred scholars, a private school kept by Dr. Withers. "The Doctor sat in a high chair, looked at us about fifteen minutes, and if there was any boy in the room who needed whipping, it was done, and he then retired into his study. I most seriously say I learned nothing."

Mr. Moody was not of this class of masters. He was neither a *Jupiter tonans*, ever ready to hurl the thunderbolts of wrath, nor a *Jupiter sedens* in unapproachable majesty; but he was a fellow-mortal working with his boys and making them work with him. Hence, under his charge they did learn.

In 1790, Master Moody resigned. His hereditary tendencies had for some time appeared, and had at length put on a morbid type which could be regarded only as a symptom of a disordered intellect. He survived his retirement from the school nearly six years. He was yet strong in body, and rode much on horseback around the country, to Cambridge and other places, calling on friends and his "boys," as he termed them; his large heart still beating with benevolent impulses, and his overactive brain full of grand, impracticable schemes for the advancement of education and the benefit of mankind.

His death, which occurred in 1795, at an advanced age, was a fitting close to a remarkable life.

"Of no distemper, of no blast he died,
But fell like autumn fruit that mellows long."

He died instantly, as he was walking the

room, discoursing earnestly and volubly in Latin.

"He resteth from his labors, and his works do follow him."

NOTE.—The Rev. Henry Durant was at one time Principal of Dummer Academy. The following extract from Mr. Cleaveland's discourse will be read with interest by all who ever knew that kind-hearted gentleman and accomplished scholar. Mr. Cleaveland says: "The Rev. Henry Durant was a graduate of Yale, where, afterwards, as Tutor, he had for colleague and intimate friend the celebrated Horace Bushnell. When appointed Principal of Dummer Academy he was, and had been for years, the minister of Byfield. He had charge of the school for about two years, and I remember to have heard, with pain, that he was not altogether successful or happy in his position here. I can only say, if intellect and scholarship, a refined taste and great amiability are all that a teacher needs, Mr. Durant should have made a capital 'Preceptor.' He subsequently became a manufacturer, and failing in this, went to California. At Oakland, across the bay from San Francisco, he opened a school for boys, and prospered. That school proved to be the seminal point of a more important institution, the College of California, since established at Oakland, and fast rising into notice and usefulness. As the first President of her first collegiate institution, and as one of the most efficient of its founders, California may well honor the name of Henry Durant."

THE TEACHER'S MOTTO.

BY CHARLES H. SHINN.

[Niles, Alameda County.]

The walls of many school-rooms are bright with sentences of warning or cheer for the laughing eyes of the restless toilers. It is a wise and thoughtful thing to keep golden words always in sight. But now let the teacher find a motto.

Busy, faithful friend of mine, whose labors I have shared, and whose happiness I have felt, whether in the fertile valleys of Monterey, or among the mines of Trinity, or beneath the shadows of Shasta—wherever in our Golden State you are—let us find a fitting sentence to guide our work.

As we begin to choose our motto the world of human thought looms widely before us. Shall we say: "Labor, for the night cometh"? or, "Follow Truth, though you perish"? or, "Love Humanity?" Yes; these and also something more exact and comprehensive.

So what say you to this? *Aim in all your work to foster originality.* Use grammar, geography, history, in-door-work and out-door-play as material, and study your opportunities. You can awaken different forces, but you cannot create them. Possibly that unkempt boy yonder can be led into the natural sciences, and become an Edward, a Miller, or an Audubon. That energetic youngster, truthful, but sadly mischievous, has, perhaps, the material of a Stanley or Kane. That merry composition-writer, whose arithmetic tables tip worse than a spiritualist's, may be the coming novelist. Acknowledge the blessed differences which exist amongst people; we must adopt no Procrustean measures.

The children now in our schools must become the future's lawyers, physicians, ministers, professors; its miners, mechanics, farmers, and merchants; its editors, scribblers, politicians, and—unspeakable waste and sorrow of human kind—its gamblers, drunkards, murderers, and villains in high places. Some of these hidden future's are in every school, under every teacher's eye, to be guided, purified, led upward, or, at his peril, neglected.

Every man may find, if he is in earnest, something for which he is best fitted of all the earth; certain other matters being easy for his neighbors, but for him impossible. The problem of life for each man is to find his own task, and thereafter help others. If you have loved and chosen the teacher's work, conscious somewhat o its height and depth, you are a rightful leader of these young wayfarers. Otherwise, you are simply a meddling, uncommissioned private—possibly a deserter from where you belong. This teaching which we do must help every one to find his proper place, or it has failed somewhere.

Now, mind you, I will not argue against

uniformity in text-books or in studies, for here united action is a necessity. But see to it, friends of mine, that your system is elastic, yet safe; and that every question and answer brings out individuality. As giant oak, and golden wheat, and nodding daisy draw nourishment from the same soil, so must future scientist, poet, and soldier, find thought in your instruction. See to it that you are liberal, quick to approve, and slow to condemn. See to it, also, that you make the men and women of history live again in your vivid descriptions; that you flash new light upon the stony pages of the earth; that you treat sacred things with reverence, and cowardly things with scorn. Tell the boys and girls daily what the world will require of them. Paint this brawny, wonderful humanity, on the whole more hopeful than gloomy, which is working out its destiny, by art, science, and religion, through famine, sorrow, disease, and war, till its brotherhoods of nations shall warm with that love of which the Christmas night is the symbol.

So, after long years, may your blessing, as a dove, return, and some grown man or woman thank you, tearfully, for your unconscious influence, and for the pure lessons you taught years, years before, in that rustic school-room, under the silver pines, or beside the willowy streams. Or you, glad teacher, shall see how one after one the children you taught win fame and honor, build happy homes, rear noble children—and joy shall rest in your heart as a bird in its leafy nest.

HOW WE TEACH COMPOUND NUMBERS.

BY CHARLES M. DRAKE.

[San Diego County.]

"We expect from you an essay on Arithmetic," said Mr. Pauly. An essay on Arithmetic! Who ever heard of such a thing? Now, an essay on Grammar, or some other study that we know but little about, would have been easy enough. Even an essay on *Spelling* has been shown by Mr. Kay to be practicable, at least; but an essay on *Arithmetic*, that should contain anything new to us teachers—do you not all see how impossible it would be to write one? Is there a teacher in this county—nay, is there one in this State, who does not feel—well, let us be moderate and say, capable of making many improvements on Robinson's Arithmetic? Of course, we may differ in our methods of teaching, but does not every doctor have his own way of killing his patients? So, though I dare not tell you *how* to teach compound numbers, I will tell you how some of us do teach them; and then, perhaps, some one else will be kind enough to tell us how it ought to be done.

I like compound numbers. Compound numbers are intimately associated in my mind with the Darwinian theory, and I am a great admirer of the Darwinian theory. "Natural selection" and the "survival of the fittest" are plainly to be seen in our metric system, while the destruction of those not adapted to the conditions is still going on. Pecks and bushels don't seem to enjoy even our wonderful San Diego climate. Gross and great gross have pined away, while dozen bids fair to become the sole remaining child of the once numerous and powerful duodecimals. Pipes and butts, hogsheads and tuns are falling to pieces; and barrel is no more a *definite* measure than is a yellow dog. In "the struggle for existence," gill has died before his twin brother, gallon, who, with his quarters and pints, are being swallowed up by the French liter. Ells, English, French and Flemish, no more disturb our dreams. Barleycorns no longer trouble our toes, nor cubits our elbows. Hands, spans, and furlongs, cable-lengths and leagues, are travelling the same road to forgetfulness, and I painfully think of the coming time when women will have

to lengthen the cloth yard from the ends of her fingers to the tip of her nose, by 3.37 inches. We still use rods in the school-room, but perch and poles have been left to fishermen and hens. Troy weight will die with the introduction of international coinage ; and apothecaries' weight will be buried with the present generation of doctors. Avoirdupois weight has parted with his quarters, and can no longer have his drams. Great is Darwin and evolution, and may they flourish and develop until compound numbers are but a thing of the past—are but fossils to be quarreled over by future antiquarians.

Speaking of fossils brings to mind my visit to Solomon Oldstyle, who teaches in Sage-brush District, north-west of Ft. Yuma. Solomon is a good, old-fashioned teacher, with none of your new-fangled notions about him, and has been in the school-room for many a year. If Solomon has a hobby, that hobby is Arithmetic.

Great is the power of Arithmetic, and Solomon is its exponent in Sage-brush District.

"They did n't teach much geography in my young days," says Solomon, "and grammar were not much thought of ; but a thurrer knowledge of figgers was considered to be the biggest half of a good English education."

Solomon likes to teach Arithmetic ; and what one likes to do he is thought to do well. Solomon don't like to teach little ones. He don't like to start a class in Arithmetic, but one that has been through the book is his "best holt." Solomon admires rules, and fairly shivers at the thought of the anarchy that would ensue should the Arithmetic-makers ever listen to those crazy-headed chaps that want rules left out of the books. Solomon laments the present tendency of the Arithmetics to give so much space to fractions and decimals, while the glorious single and double rules of three have dwindled away to a mere shadow of their former selves.

"Then, there is *practice*," continued Solomon. "Can you tell me where practice is gone ? Oh ! the drill we used to get out of practice ! " and Solomon sighs for Doboll's Arithmetic of his childhood days.

But one place—*one place* is still left to show Solomon in all his glory. That place is compound numbers. Great is the day, and ever to be remembered by the trembling urchin, when after passing through simple numbers, fractions, and decimals, letter by letter and page by page, (you know it would be disrespectful to Prof. Robinson to skip around in his Arithmetic as the State Board recommends) after all this is done, Solomon at last announces, with ill-concealed exultation in his voice, that to-morrow they will begin compound numbers. "We will begin," says Solomon, "on page 130 of Robinson's Rudiments of Arithmetic, and take four pages, including U. S. money, Canada money, English money, Troy weight, Apothecaries' weight, and Avoirdu*pois* weight. You have learned U. S. money once before," adds Solomon, as he dismisses his class.

Now I should have thought that to be nearer the work of a month than of a day ; but Solomon knows that the tables will stay in the book and be handy to turn back to when they finish the tables and get to the *sums*.

Solomon likes tables, and his pupils have learned addition tables, subtraction tables, multiplication tables, and division tables until they hate the sight of every table but the dinner table. Solomon *believes* in tables. "They make the children do the work and relieve the teacher," said he to me, and then composedly sat down to rest until recess time. The children recite the tables and definitions just as they are given in the book, and Solomon asks an unlucky wight who attempts to give the definition of weights in his own language, if he thinks he can improve on the book. "John wants to make an Arithmetic of his own,

says Solomon, with grim jocoseness. "Sarah, you tell what weight is." "Weight is the measure of the quantity of matter a body contains, determined according to some fixed standard," recites Sarah. Don't you think she understands that *well?* How I do admire such precise definitions in such great abundance. If one asks Solomon what is his method of teaching compound numbers, he says: "Method! why —you want to learn the children their tables and how to do their sums, and make it practical: by all means make it practical."

I very nearly hate that misused word.

Let us see how Solomon taught U. S. money. First the pupils learned the tables; then they "did the sums" in some way or other, the smarter helping the lazier, and always having the most difficulty in getting those with the answers in the book, for they *guessed* the others were right, and if they didn't bother Solomon, he would not trouble them. "If they'd have wanted us to get any other answer, they might have put it down," says the young Sage-busher with a grieved look. The meaning of the word mill, cent, dime, and dollar; why we didn't keep the £, s. and d. of our English ancestors; just what coins are made of, and how they are made; why they are circular, and have a notched rim; what the figures on each side mean, and how to tell the mint they are coined in; all these things are, I fear, unknown alike to Solomon and his pupils.

The young Sage-brusher knows a few of the different coins by sight and by name, but he cannot count the money that jingles so musically in his teacher's pocket at the end of each school month.

Gold has been seen in Sage-brush District, and silver is known, but nickle and bronze they know naught of. Bits they know and half-bits they despise, but if you give one a half-dollar and owe him a dime, he gives you 30 cents in change and thinks it all right. With this brilliant preparation on *American* coinage, Solomon's class study *English* money. 20s. make £1, they read, and think how nice it would be to have a pound of money. One boy from Yankee dom remembers that a cent was called a penny there, so a shilling *must be* a bit. Perhaps he wonders how a £ should stand for pounds, or a d. for pence; but former rebuffs have taught him that wonder is not profitable in Sage-brush District, and he asks no questions. Thus they go through compound numbers this term and that, in this book and the other, until they get too big to go to school, when they marry and get to be school directors, in virtue of their superior education; and then woe to the unlucky master who teaches not as Solomon did.

And, alas! there are many such Solomons, even in this State of tough examinations and wise Boards of Education. But their day is fast passing, and the younger prophets are coming to build the new temples of learning out among the sage-brush and catcus, where the quail still calls to his mate, and the mule-eared rabbit sleeps in undisturbed serenity of mind.

Prof. Newman is a *first-class* teacher, for does he not hold the written permission of the Governor, the State Superintendent, and other great men, to instruct and thrash the rising generation? He, also, likes compound numbers; for where else can he display so much of that varied learning that forced the State Board to acknowledge his superior fitness as a teacher? He is a *live* teacher and a *conceited* one. (These terms are nearly synonymous, by the way.) He believes in lecturing, and gives a re-hash of his former studies each day, for the pupils' benefit and his glory, in language fluent, but ofttimes rambling and obscure. He is preparing, I hear, to canvass for the County Superintendency next term. He is fond of jokes, and never fails to tell the children, as they recite the table of U. S.

money, that Uncle Sam is a great *mill*-owner, and that the golden eagle has more *cents* than any other bird he knows of. The scholars all laugh, of course, whether they understand it or not. He remodels all the rules and definitions, and says the book is poor here and wrong there with great positiveness. When I visited his school he was giving a sort of lecture or commentary on U. S. money, but if he hadn't told me so, I should have suspected it to be on Political Economy, Morals and Manners, Sociology, or some other study that I am not much acquainted with.

"What is this I hold up, Charles," said Prof. Newman.

"A half-dollar, sir," was the reply.

"That is correct, Charles. Now I suppose you would work some time for a half-dollar; perhaps longer than I work to get $4. So boys, you see that money is a measure of people's work. If you have a half-dollar, that is a sign that you or somebody has been working. Now you might work, say at herding sheep, all day for a dollar; I might get five times as much for teaching half as many hours; while a great doctor might charge ten times that for a minute's work. That is because more people can herd sheep than teach school; and while there are so many school-teachers they can't hope to get so much as a smart doctor, though it takes more knowledge to put a good head on a boy than to cut one to pieces. Now, whether you earn $1 a day or $10, you must spend part of it for food, part for clothes, and part for shelter; and then, if you can, lay up part for rainy days, though we don't have many of them in San Diego County. But our time is nearly up. To-morrow we will talk about Troy weight, though we won't have much gold or silver to weigh; then if we get sick of Troy weight we will take the Apothecaries' table and get cured up. Now see if you can find out what the grains are grains of; why a pennyweight weighs less than a penny; what ounce means, and what words are kin to pound, which comes from the Latin. Oh! I promised to tell you about the relations of mill, cent, etc., did I? Well, mill means $\frac{1}{1000}$, and is a connection of million, millenium and mill. Cent or $\frac{1}{100}$ is a cousin to the French centime, and a grand-child of the last century and centennial. Dime, or $\frac{1}{10}$ is brother to decimal and dozen, and many other words. As for dollars and eagles, I don't believe they have any relations in this country; but, boys, take good care of them when they come to you, for they are the best *friends* one can have."

Here, the Prof., having exhausted himself and his time, waved his hand gracefully, and dismissed the class. Now, I suppose that was intended for model oral instruction, and may be it was, but it reminded me somehow of the way they feed chickens in France to fatten them for the market.

Miss Normal comes from San Jose, where she had graduated a few months before I had the pleasure of visiting her school. Miss Normal has many hobbies, which she rides gracefully, woman-fashion, pulling this rein or that as she was taught to do in San Jose. It does one's heart good to hear Miss Normal tell of San Jose; and of how they did at San Jose; and of what the Professors said at San Jose. Miss Normal intends to be very exact, but like all such people, is sometimes a little finical. Does she learn that from the professors? Just a little of it, I am afraid.

Miss Normal likes compound numbers, for they explained them *so clearly* at San Jose. She had just finished long measure when I visited her school, and they had measured all the desks, and blackboards, and windows, and pupils, and had guessed at the height of houses, and trees, and hills, and mountains during the past week. As Miss Normal wears 1½-shoes, they measured

all their feet, and she shivered as she thought of the No.of the shoes that the English king must have worn if his feet were really twelve inches long. She now proceeded to prepare her pupils for the study of square measure. A square foot was divided into inch squares; and a square yard, into square feet, to show how they made the table and the rule, which she gave as follows: "To find the area of a rectangular figure we multiply the length in figures of one denomination by the width expressed in figures of the same denomination." Clear, Isn't it? "Thus," said she, "if a table is 3 feet long and 2 feet wide, we multiply 3 feet by 2 feet, and get 6 square feet. If a yard is 3 rods long and two rods wide, by multiplying 3 rods by 2 rods, we get 6 square rods this time." I suppose I must have looked a little doubtful, for Miss Normal asked me if that was not correct. I answered, "If we multiply 3 rods by 2 rods, and get 6 square rods, we ought to be able to multiply 3 men by 2 men and get 6 square men; and I do admire a good square man, Miss Normal."

Miss Normal rather snappishly replied that "*men* were not measures of *length*."

"I can hardly agree with you there," said I; "we get feet from man and inches means twelfths of a foot. His *hands* measure horses; his fingers, cloth; his spans, rope; and his fathoms, the sea. With his cubit or forearm, and his mile or thousand paces, I think we can call him a pretty good measure of length."

Miss Normal was offended, but returned gallantly to the charge. "I suppose you do not think it right, then, to multiply the length, breadth, and thickness together to get the solid contents of a body."

"O yes," I said; "that is the way we get our *solid men*, you know."

If looks could have killed me, I should not now be reading this essay. It was unfortunate that this affair occurred, or I might have been able to tell you just how to teach compound numbers; but the atmosphere was *so* chilly after that, that I soon sought the sunshine.

Miss Normal is, I hear, engaged to Prof. French, of Stockton, who is laboring under a bad attack of the metric system. I had an hour's conversation with him once; and he positively filled me so full with his meters that my digestion was spoiled for a week afterward.

"A grand system! and so simple!" said Prof. French. "It has suffered *abuse*. The Americans *tried* to make their coinage *decimal*, but they didn't know how to proceed. The weight and fineness only should be stamped on one side of coins, and their values should be as 1, 2 and 5; 10, 20, and 50, etc. Such monstrosities as 3c. and $3, quarter-dollars and $2.50 are a *disgrace*. Then we might *now* have had international coinage. Then, there is *paper* measure. Have they any excuse for not having 10 sheets to the quire, 10 quires to the ream, 10 reams to the bundle, and 10 bundles to the bale? Some one ought to reason with those that put up dishes and pens and copybooks, and such things by the dozen. The metric system has one fault. It don't go quite far enough. Let me show you my consolidated table of time and angles: 10 hrs.=1 day=○=1 circle =10°, then 10′ to 1° or hour; 10″ to 1′ 10‴ 1⁗ would be small enough for all practical uses. See how simple longitude and time would become.

"Then," continued the Professor, "I would have 10 days to a week; and 10 weeks to a season; and—." Here I left, hastily, for fear the Professor should insist that I should help him to alter the speed of the earth around the sun, so that it should conform to his metric system, and then I might not have been able to attend this Institute or read you this essay.

The faculties grow by exercise.

ONE HUNDRED VOLUMES.

BY JOHN SWETT.

(Principal of the San Francisco Girls' High School.)

Starr King, in his admirable lecture on "Books and Reading," said that "A hundred volumes could be selected, the mastery of which, by attentive reading, would make a man better furnished with instruction, and better able to comprehend and enjoy the advances of knowledge, under the lead of the explorers of this generation, than any scholar or literary man is, we have in our country to-day."

I have rummaged around among the books on "What to Read," etc., but, among the elaborate "courses" of reading, each including a thousand or two volumes, which nobody reads, nowhere have I been able to find a 100-volume list.

It seems to be a very evident duty of teachers to give their pupils some kind of a guide in respect to reading after leaving school.

Every graduate of a grammar school, or of an ungraded country school, ought to get from the teacher a list of choice books to be selected from the great mass of literature.

I submit such a list, made out for the benefit of the normal class and the senior classes of the Girls' High School. While it will probably be satisfactory to nobody, it may stimulate somebody to submit a better one. It will be borne in mind that this list includes books to be read during the ten or twenty years succeeding "graduation day." Will some grammar principal make out a minimum list of fifty volumes for boys or girls whose course of school work ends with the grammar school? And will not some country school teacher submit a list of fifty volumes for boys and girls whose school training ends in the ungraded schools?

BIOGRAPHY.

Everett's Life of Washington, Irving's Life of Columbus, Parton's Life of Benjamin Franklin, Autobiography of Benjamin Franklin, Parton's Andrew Jackson, Smile's Brief Biography, Plutarch's Lives, Muhlbach's Historical Novels, Eminent Women of the Age, Irving's Life of Mohammed.

HISTORY.

Dickens' Child's History of England, Green's History of the English People, Macaulay's History of England, Vol. I., Prescott's Conquest of Mexico, Prescott's Conquest of Peru, Motley's Dutch Republic, Buckle's History of Civilization, Vol. I., Hawthorne's True Stories from History, Bonner's History of Greece, Bonner's History of Rome, and Motley's United Netherlands.

TRAVELS AND EXPLORATIONS.

Du Chaillu's Equatorial Africa, Dr. Kane's Arctic Explorations, Baker's Central Africa, and Bayard Taylor's Travels.

LITERATURE.

Taine's English Literature, Ralph Waldo Emerson's Essays, Thackeray's English Humorists, Thackeray's Four Georges, Whipple's Essays and Lectures, Lowell's My Study Window, Irving's Sketch Book, Shakespeare, Macaulay's Essays, and Holmes' Autocrat of the Breakfast Table.

POETRY.

Longfellow, Whittier, Lowell's Bigelow Papers, Tennyson, and Scott's Lady of the Lake.

SCIENCE.

Appleton's Science Primers, Guyot's Earth and Man, Agassiz's Geological Sketches, Agassiz's Methods in Natural History, Mitchell's Planetary and Stellar Worlds, Proctor's Light Science for Leisure Hours, Proctor's Borderland of Science, Tyndall's Fragments of Science, Whitney's Science of Language, Youman's Culture Demanded by Modern Life, Tyndall's Glaciers of the Alps, Huxley's Lay Sermons, Figuier's Primitive Man; Herbert Spencer's Sociology, Biology, and Social Statics; and John Stuart Mill on Liberty.

FICTION.

Dickens' Nicholas Nickleby, David Copperfield, Old Curiosity Shop, Tales of Two Cities, Christmas Tale; Thackeray's Virginians, Vanity Fair; Bulwer's My Novel; Hawthorne's House of Seven Gables, Scarlet Letter, Marble Faun; Reade's Hard Cash; Miss Muloch's John Halifax Gentleman, Woman's Thoughts about Women;

Charlotte Bronte's Jane Eyre; Mrs. Lewes' Adam Bede; Miss Alcott's Works; Mrs. Whitney's Works; Howell's Out of the Question, and Foregone Conclusion.

MISCELLANEOUS.

Little Classics, Harper's Half-Hour Series, Whitney's Language and the Study of Language, Hawthorne's Mosses from an Old Manse, Thoreau's Excursions, Hammerton's Thoughts about Art, Taine's Art in the Netherlands Taine's Art in Greece, Emerson's Representative Men, Herbert Spencer's Education, Curtis's Prue and I, Mrs. Stowe's We and our Neighbors, and Starr King's Lectures.

BOOK-KEEPING.

BY D. G. INGRAHAM.

[Principal of Dutch Flat Schools.]

The loud call of the public for *practical* teaching in our schools has led to such a revision of our course of study as is discretionary with the teacher. It is so universally felt that the arithmetic does not fit pupils for the practical business of life that some sort of oral teaching is necessary to supplement the knowledge gained from the Progressive *Practical* Arithmetic, as now generally taught. The ability to cast accounts, in the simplest possible way, perhaps, is one of the earliest requirements of the boy or girl who has to "step out" into financial "struggle for existence."

As soon as decimal currency is reached let the class begin book-keeping. There is no exercise on my programme that pupils have taken to with so much alacrity as this. I begin with slate and blackboard exercises—no text-books—to teach the debit and credit sides of the day-book. Each pupil chooses some kind of business—dry goods, groceries, hardware, etc., according to his taste. He is required to sell and buy of his classmates, making up ten to twenty debits or credits daily. He is required to post himself from market reports in the daily papers in regard to the wholesale and retail prices of articles in his particular line of business. The proper abbreviations, proper spelling, as well as ordinary prices of common articles of merchandise are thus learned, and made a matter of criticism by the whole. The pupil should be required to clip the market reports and paste them in his arithmetic ready for use. It is well also to have him write out his advertisement as he would have it appear in the paper, and learn the usual cost of such advertisements. To avoid monotony let any pupil who becomes proficient in any kind of business change to another at the beginning of the week, and learn the new prices, abbreviations, etc.

At recitation, each pupil rules a portion of the blackboard with columns for his day-book, and spreads upon it such a portion of the exercise as time will allow. His spelling, abbreviations, prices, etc., are open to criticism by his class and the teacher. When over a month has been spent on the day-book, (the exercises need not be daily, but tri-weekly) the ledger may be introduced much in the same way, having the whole or a part of the day-book posted therein. In course of time the cash-book may be introduced, and other books of single entry in the same way. Bill-books may not be brought on until interest and banking are passed over in arithmetic.

Thus, book-keeping exercises are made gradual, pleasant, and profitable. By the time the pupil is through with the Progressive Practical Arithmetic—and many a pupil gets no further school advantages—he has such a general knowledge of single-entry book-keeping as will fit him to keep the ordinary accounts of store, shop, or farm. He is prepared also, if he continues in school, to take up double-entry, and may now be supplied with the blank-books required.

The advantages of these exercises may be summed up as follows:

1st. No expense to parents for text-books, no soiled or blotted books, no monotonous *copying* of items from a text-book.

2nd. Benefit to the pupils from the necessity of studying prices.

3rd. The critical exercise in orthography.

4th. The gradual preparation for business composition on a larger scale.

5th. The pupil is led to look out upon life as a business occupation, and to desire to enter upon some congenial means of support.

EDITORIAL DEPARTMENT.

Our New Year.

On the first March morning of 1878 we shall celebrate our first new year anniversary. The JOURNAL will be one year old. Like many another bantling it was a somewhat feeble child. But thanks to the kind Providence who has thrown around it propitious influences, it can now stand erect and walk by its own force. Physically, the elements are against us: the day is not a genial one. A storm is raging —wild winds and rain over all the coast. But we are better able to stand a storm of any kind, than we were one year ago, when our feeble voice was lifted for the first time to the public ear. We have passed successfully our era of infancy, and have not gone down to the dust in languishing and death. We have grown and developed; and if we have not waxed fat and kicked indiscriminately, we have exhibited vitality and power, and our voice has rounded out into a force that may speak with no uncertain sound.

We enter upon our second year with congratulations and thanksgiving, with assurance and high hopes. We feel confident of the future, and believe that we are born to live; that we have a work to do in the great thoroughfare of life, and we propose to accept the dispensation, and do it with our whole heart and soul.

We wish to see the JOURNAL correctly represent the condition of common school education on this coast; truly reflect the opinions of our representative educators. We desire to make it the medium of expression of the best plans, the best methods, the most advanced culture, the soundest judgment and wisdom, and the best suggestions that are to be found. This is our ardent desire.

We return many thanks to those who have aided us so nobly, who have given us substantial help with no hope of reward other than that which a noble deed always brings. We trust they will have their reward, and their example will stimulate many others to go and do likewise.

The Policy of the Journal.

"Has the JOURNAL a regular policy then?" we are asked. Yes! decidedly.

Its policy is to speak out, fearlessly and unequivocally, for teachers and for education.

To make teaching a profession on this coast.

To raise salaries to a living standard.

To decrease the quantity of teaching by improving its quality.

To furnish such a variety of technical and general literature as will assist in making teachers a class of cultivated men and women.

To fight at all times, without fear and without favor, all enemies of the nation's safeguard—our common schools.

To advocate educational progress—from

whatever source it comes, and in whatever direction it tends.

To impress upon the people the paramount importance of popular education.

To worthily sustain the dignity and honor of the teacher's profession.

This is the policy of the JOURNAL. How do you like it fellow-teachers ?

Elementary Technical Training.

A correspondent desires us to "STATE DEFINITELY" what sort of technical education we favor in connection with our common schools.

Perhaps it will be well, first, to describe what we do not favor.

We are decidedly opposed to any change either in character or methods of instruction in our State University. Our normal and high schools are doing a grand and noble work: the rude hand of rash innovation should not be allowed to impair their usefulness. Our primary city schools, and the ungraded schools of the country, are fully carrying out the purpose for which they were designed—to raise the intellectual standard of the people; to give the masses the elements of a sound English education. Unquestionably, these schools should not be disturbed. We do not favor any change in them.

We shall now state our plan for introducing a system of practical training into grammar schools.

Our plan is to set aside in some city, San Francisco, for instance, a school-building of from eight to twelve rooms; all but two of these rooms are to be used for the same purposes and in the same manner as are other class-rooms in the city department, that is, for instruction in the ordinary branches, but provided always that in this school—reading, writing, arithmetic, and DRAWING are to have the preference over all other studies. Two rooms in this building are to be set aside for practical work; the first of these rooms shall be fitted up with tools, and models of machines; the other room with one or two work-benches, arranged according to the description given by us in our February number.

The course of study in this school should embrace three or four hours' daily instruction in the ordinary branches, including drawing, and, for the first year, general instruction on the names, parts, construction, and use of tools. The bent of each pupil's inclinations would be ascertained, and special instruction given him in the use of those tools for which he manifests preference.

In the second year and the third, the instruction in ordinary branches would be continued, but pupils would be placed at the workbench in the second room, there to learn the elements of the trade he has chosen.

This is a brief and bare outline of the kind of school which we believe is demanded by the conditions of modern life and labor.

The working classes, skilled and unskilled, insist on an experiment of this sort, even if it proves unsuccessful.

What would be the cost of such an undertaking ? Not $1000 for apparatus, workbenches, and models. The expense for instruction will be but a trifle more per annum than it is in primary schools, and not nearly as much as is the cost of high and cosmopolitan schools.

How can such a school be organized ?

Simply by action of any Board of Education. Our impression is that no further legislative action is necessary, but that, under our present school law, such a school may be established.

What good will such a school do?

It will give all who attend the essentials of a sound English education; it will give them a knowledge of tools and machines; it will develop a taste for some skilled labor; it will give a theoretical knowledge, at least, of a trade; it will, from its associating literature with work, tend to elevate the latter in the eyes of the young.

Such schools, well conducted, will solve, to the relief of our generation, and the benefit of our posterity, the question of what to do with our boys and girls.

We have just received from Prof. Minns, Boston, a copy of the magnificent National Hymn, which is becoming so popular throughout the East and West. It will appear in our April issue.

State Text-Book Uniformity.

We believe we have already mentioned this subject in the JOURNAL. We propose to do so again and again, until it has been thoroughly discussed, and is fully understood by the great body of our teachers.

An able article, which will appear in April, by W. Fred Bray, a teacher in Butte County, makes a strong argument in favor of our present system of uniformity. We will not anticipate by quoting Mr. Bray, but will remark that theoretically the uniformity side is most attractive.

Practically it is not so. Parents will always grumble about the cost of school-books, and they have not grumbled less than usual for the past two years.

The evidence (we have it now at our elbow) of thirty State Superintendents of different States, is against State uniformity.

A large majority strongly corroborate our view, that the best plan is county uniformity, excepting all incorporated cities, whose Boards of Education should select for their special jurisdictions.

We reserve further comment until Mr. Bray's article appears.

School Bills Before the Legislature.

We believe that there are about twenty school bills now under consideration by the the Legislature at Sacramento.

No wonder the friends of our public schools stand aghast at the possible mischief that may be wrought. Teachers are justly alarmed at the character of some of the proposed measures. And to add to their distrust and alarm, no one seems precisely to know what it is that our law-makers propose to do. Certificates are to be meddled with, and it is supposed that while one law cancels all certificates issued prior to 1872, another makes all certificates hereafter issued, for life : *i. e.*, makes a third grade county certificate practically a life diploma. Should this measure pass, we may expect to see, at no distant day, salaries in ordinary district schools $20 per month, and "board around."

Thus far, however, no bill of general interest has become a law; and it is the earnest prayer of teachers and friends of our schools generally, that, with the exception of the text-book matter, the Legislature may find itself so occupied with affairs of more (?) importance, that school legislation will be indefinitely postponed.

What the cause of popular education much needs at this time, is the presence of some able and influential MAN at Sacramento to confer with and advise legislators in reference to school matters. A man is needed of strong and pronounced views; one who thoroughly comprehends our common school system; who cordially sympathizes with its spirit; one who is not a dabbler in education, an amateur, but who has taught, and who holds teaching a profession.

There are two or three such men in California: would they were now in Sacramento!

Our school law needs amendment; some changes are necessary in our course of instruction, but it were much better to let the whole system alone—to "let us have peace"—than to tinker with it in ignorance or prejudice.

Agents Wanted.

We want a regular agent in every county in California, Oregon, and Nevada.

Teachers of ability and energy are respectfully requested to communicate with us at once. Booksellers are invited to correspond with us.

We shall endeavor to establish active agencies in every quarter of the coast. The JOURNAL should go into the hands of parents as well as of teachers. We hope to see it more generally introduced into the homes of the Pacific Slope. We wish to inaugurate an active canvass looking to this result, hence we wish intelligent and active agents.

Teachers will likewise bear in mind that, at a regular meeting of the STATE BOARD OF EDUCATION, held in San Francisco, Oct. 26th, 1877, it was unanimously "Resolved that THE PACIFIC SCHOOL AND HOME JOURNAL be placed on the District Library List." Every teacher may double his own subscription, and benefit his classes, by inducing his Trustees to subscribe, in accord-

ance with the recommendation of the State Board.

Let us hear from all parts of the Coast at once.

Important.

Subscribers will please take notice that we shall issue but TEN NUMBERS of the JOURNAL during the year 1878. Our object in doing this is to begin each new volume on the first day of January. The numbers omitted will be those of June and September. In order that the hiatus in June and September may not be too great, we shall issue the May and August numbers on the 15th of those months. These numbers will be DOUBLE; and we shall endeavor to make them both in variety and excellence of matter, the numbers par excellence of the year.

Our New Title Page.

We had expected, until a few days ago, to begin our new year with a handsome new title page. But unfortunately, the designer did not finish his work until too late for the engraver. In April, we shall greet our readers with a bright and smiling face.

WHY not transfer the responsibility for cramming where it rightfully belongs—to the parents ?

Teachers are, generally, not half so anxious to employ the hot-house process as parents are.

What teacher would dream of sending a boy or girl of eleven, twelve, or thirteen to do high school work, did not parents insist on it !

Talk of cramming and slaughter of the innocents ! Teachers cram because they can't help themselves; and parents slaughter by other instruments than hot raised bread.

The majority of children are not sufficiently matured at fourteen, mentally or physically, to do high school work.

The standard of such work must either be lowered to suit the mental capacity of the learner, or else the result is—what it too often is—the grade of the high school goes down, or out goes the child, shattered in health, and with all confidence in its powers gone forever.

A NUMBER of letters have reached us from teachers, stating that they "would like to get the JOURNAL for the School Library, but regret the present lack of funds." To all such, we reply: Send along the order of your District Clerk subscribing for the JOURNAL. We will wait for our money until you have funds. Don't hesitate, but send at once.

One of the best teachers on the coast says: "My pupils read the JOURNAL with the same delight that I do."

We hope the time is not far distant when every school district, as well as every teacher on the Pacific Coast, will take and read the JOURNAL.

THE attention our readers and friends is called to the new advertisements in this number of the JOURNAL. Billings & Burgin, a new firm for furnishing all sorts of school supplies, and agents of the National School Furniture Company, address the superintendents and teachers of the coast for the first time. The Berkeley Land Association makes an exceedingly attractive offer to teachers. Roman & Co., as ever one of the most popular book houses on this coast, makes an excellent display for our new year.

Our friends will greatly oblige us by mentioning the JOURNAL whenever they order articles from houses advertising with us.

SHORT, pointed suggestions on topics that arise daily, is what teachers gladly see in an educational journal. To such suggestions we propose to devote the "Department of Practical Work." Some of the ablest teachers in the State have consented to edit this department. Will teachers who have suggestions to make or new methods to propose, communicate with the editors ?

AN additional evidence—if any is required—of the success of the JOURNAL, is the new type in which these lines meet the eye of the reader. With the new type, new advertisements, and new subscribers, the JOURNAL enters its second year all bright without, and sound to the core within.

THE most valuable part of our DEPARTMENT OF PRACTICAL Work, is "Suggestions for Ungraded School Work," which will be commenced in our April number.

Fully one-half the schools on this coast belong to this class. Their influence in molding the future of our land, can scarcely be over-estimated. Hence, all that can be suggested for their improvement, whatever will widen the circle of their usefulness, cannot but prove an important factor in determining the future welfare of our State.

We hope teachers will take an active interest in contributing to this Department.

WE have received some excellent articles for publication, which will appear in our April issue. Among them are contributions from Prof. W. W. Anderson, Santa Cruz; F. H. Darling, Santa Cruz; J. M. Eddy, Humboldt; Grove K. Godfrey, Modoc; a charming Boston letter from Prof. Minns; and an excellent article on "Reading" by Prof. O. S. Ingham.

CONTRIBUTIONS for the DEPARTMENT OF PRACTICAL WORK are earnestly solicited by the editors. It is believed that this department may prove of the greatest practical value to educators, as well as a very interesting feature of the JOURNAL. Every variety of suggestion bearing on the practice of teaching will be welcome. Let all articles be short and to the point.

DO NOT some people expect a little too much of our public schools? Some folks expect them to graduate lawyers, doctors, or ministers; others to make carpenters, machinists, etc., etc.; still others that it is the bounden duty of our schools to convert all the little humans that enter their portals into angels. Well, we're sorry! but our public schools can't do all these things.

WE have received the annual report of the Board of Education of Atlanta, Ga., which shows a gratifying progress in the free school system of that city. For this, as well as for the educational progress of Georgia generally, the citizens of that State are mainly indebted to their very able State Superintendent, Dr. Bernard Mallon.

GENERAL NOTES.

BY PROF. MINNS.

[Concord, Mass.]

The library of Harvard University contains 163,000 volumes.

President Eliot gives four scales of annual expenditure by students at Harvard University: Least, $499; economical, $515; moderate, $830; ample, $1,365. As the result of a large number of inquiries, he found that the smallest annual expenditure was $471, and the largest, $2500.

The cylinder ship, bearing the famous obelisk, "Cleopatra's Needle," has reached the mouth of the Thames. The news having spread that the obelisk was coming up the river, crowds gathered at every wharf to cheer and wave handkerchiefs. The Queen sent a dispatch to the successful engineer, announcing her gratification at hearing of the safe arrival of the Needle.

Colorado College, located at Colorado Springs, Colorado, raises the standard of scholarship higher than any other college in the world. It floats at an elevation of six thousand feet above the sea. Long may it wave! It does not need for its motto—Excelsior. The air is so wonderfully stimulating that no student can take a "dead" at any recitation.

In a lecture before the Spelling Reform Association, in St. Louis, W. T. Harris, Superintendent of the Public Schools of the city, thus enumerated some of the evils of the present system of spelling: 1st. It stands in the way of a sound, comprehensive, national education. Hence the prevalence of the illiterates. 2nd. No one is certain how to pronounce a word he has only seen written and never heard spoken. 3rd. No one is sure how a word is spelled

which he has only heard pronounced and never seen written. 4th. It throws a barrier in the way of all sound and accurate philological research. He thinks the term "orthography," as applied to the present system a misnomer, and says that it might more properly be called "heterography."

President Bascom, who presides over a Western college to which young ladies, as well as young men, are admitted, has recently expressed his warm approval of the co-education of the sexes, and has asserted that girls are better students than boys, for the reason that they are better adapted to sedentary pursuits. In other words, he claims that girls can sit down more successfully than boys, and that this fact enables them to surpass the other sex in study, and in whatever business or profession involves a large amount of sitting down. If this be true, Sitting Bull, if he entered a college, would certainly graduate the first scholar. If sitting down is absolutely necessary to high *standing* in the class, every student must forthwith procure the most improved rocking-chair, or despair of success.

Can a college student have his washing done for less than $2 a year? A Cornell graduate affirms that $1.59 was all that he had paid, and that his board-bill was $34.06 a year, and the annual cost of his education averaged $184.68. A member of the class of 1874 pronounces the statement incredible, and says that when he was at Ithaca, washing cost seventy-five cents a dozen; and board in the cheapest clubs was never less than $2 a week. He is confident that a student who eats less than $50 worth of food in the course of forty weeks would not have the strength to keep a cash account, to say nothing of the higher mathematics. He thinks that a Cornell student, by rigid economy, can manage to keep soul and body together on $400 a year, but any attempt to cut down expenses below $300, he regards as suicidal.

Mr. Henry M. Stanley, the celebrated African traveler, is described as a man slightly bent under a burden of memories of fevers and cramps; with a boyish face crowned with a shock of iron-gray hair, in curious contrast with a black mustache; with high cheek-bones, a tanned skin, and the hands of a backwoodsman, roughened by cutting a way through forest and jungle, and carrying an elephant rifle firing a two-ounce ball. When he reached the ocean from the African interior, he was so emaciated that he weighed only 119 pounds. In fifteen days thereafter he gained half a pound a day, and his sea-voyage to France almost completely restored his health. From the moment he entered the African continent on one side, until he emerged from it on the other, he never received a letter or a newspaper, or heard a syllable of what was going on in the world. Mr. Stanley's expedition is said to have cost $115,000, the expenses being divided equally between the *New York Herald* and the *Daily Telegraph* of London.

The present century will always be accounted among the great eras of scientific discovery. Among the many wonderful results of scientific research are the following: The railroad; the telegraph; the anæsthetic properties of ether, chloroform, etc.; the spectroscope, with the discoveries reaching from the earth to inconceivably distant fixed stars; the determination of the laws of the correlation of forces and the conservation of energy, which succeeded the discovery that heat is only a mode of motion; the composition from lifeless elements of many organic substances; the discovery of two satellites of Mars; the invention of the telephone and the phonograph, one of which enables us to transmit our voices to great distances, the other

preserves our utterances for indefinite periods, so that the speech of to-day records itself, as delivered, with all the variations of rate, force, and inflections, and may be heard again at any time in the future. The time may come when one may attend a dinner by telephone, or, by means of the phonograph, may, years after the death of a great orator, listen to his speech as he pronounced it. To this wonderful record a new chapter is now added. It is said that within a very few weeks two European investigators, M. Cailletet, of Paris, and M. Pictet, of Geneva, have succeeded in condensing to a liquid form all the gases that had hitherto defied such effort. The report is that acetylene, which occurs in small quantities in illuminating gas, nitric oxide, and some other compound gases have been liquefied. Next, oxygen yielded to pressure and cold; an event of sufficient importance to be telegraphed by Professor Tyndall to the London *Times*, and to be announced at scientific centers all over the world. Now comes the announcement that nitrogen has liquefied under a pressure of 200 atmospheres; hydrogen, under a pressure of 280 atmosphere, was reduced only to an opaque mist; but the air which we breath was converted into a liquid, and poured out in a fine stream. The cold required for these experiments is almost inconceivable; it is estimated at 300° below zero of the Centigrade themometer, equivalent to more than 500° below of Fahrenheit's scale. It was the low temperature — not the great pressure — which liquefied the gases. The cold of the void of space through which the planets are traveling is estimated to be not greater than this. It follows that, in the cold of space, unwarmed by the sun, an atmosphere like that of our globe would freeze first into a liquid, and then into a solid mass.

The circle of knowledge commences close around a child.

NOTES, QUERIES, AND SOLUTIONS.

EDITOR JOURNAL: Your Correspondent, in reply to "Questions in January Number," says: "We are cognizant of a sound just as we are cognizant of wind. Neither is matter." Sound is a sensation, not matter. Wind is air in motion. Does he mean to say that air is not matter?

Again, he says: "When ice melts, heat is absorbed." I presume he considers heat to be a mode of motion; if so, will he explain how it can be absorbed. I know the expression is a common one, but is it correct? B.

San Francisco, Feb. 13th, 1878.

More Questions.

EDITOR JOURNAL: Believing that the practice of solving, or even of trying to solve, the problems you insert is well calculated to awaken and develop a beneficial mental activity among your readers, I send in a short set of questions:

ARITHMETIC.

In extracting the cube root, what relation is there at any stage of the process between the number in the root and the greatest possible remainder?

ALGEBRA.

Find by a simple equation a number the square of which exceeds its square root by 14.

GEOMETRY.

Place four points all equally distant from one another.

PHYSICS.

1. The altitude of a square right pyramid is 40, and each side of the base 12 feet. What angle must the base, raised on one of its edges, make with the horizon, so that the line of direction shall pass through that edge (or so that the pyramid shall be on the point of toppling over)?

2. Why will a body, suspended from a spring balance at the level of the sea, indicate a less weight in low than in high latitudes?

3. Given the respective weights of the same body on the surfaces of two planets, and the radius of either planet to find the radius of the other.

UNITED STATES HISTORY.

In the American Revolution, which was the first act of forcible opposition to royal authority, such act including the capture of arms and military stores?

LANGUAGE.

1. Point out five errors in—"He received a cablegram and suicided, killing himself dead."

2. Why is *hath* not ungrammatical in,

"The head and front of my offending
Hath this extent, no more"?

3. In former times, druggists were accustomed to follow the physician to the house of the patient, and compound medicines there. The mortar or pot they carried was the sign of a professional visit. Why, then, should not *Apothecary* be derived (as Swift suggested) from "*A-pot-they-carry*"? H. J. BYRNE.

San Bruno, Feb., 1878.

Solution by "Hugo del Monte."

SAN MATEO.

Query: At what distance above the earth's surface should an observer be, to see a given (or *n*th) portion of its surface?

Let P be the observer's position, A a point on the earth's surface directly below it, and AHB a great circle passing through A. Draw the diameter AB; from P draw a tangent to the circle; join the center C with the point of contact H, the limit of the visible horizon. Then AP is the altitude required. The portion of the earth's surface included in the revolution of the line PH is 1–*n*th. From H draw HD perpendicular to CP. Then (*Davies' Legendre*, VIII, 9) AD is the *n*th part of the diameter, and is given. The remainder of the diameter, BD, and the distance to the center, CD, are also given. Again, (Ib. IV, 23) $HD^2 = BD \times AD = CD \times DP$; that is, $DP = BD \times AD \div CD$, and the altitude sought, AP=DP—AP.

When, as in January number of the JOURNAL, the required part is one-fourth of the earth's surface, AD=CD; hence, CP=BD, (three-fourths of the earth's diameter) and the altitude sought is equal to one-fourth of that diameter, or 1978 statute miles.

N. B. Construct the diagram referred to above.

NOTE.—When the altitude above the earth's surface is not very great, the following rules give close approximations:

I. To the number of *feet* in the altitude add half that number, and the square root of the sum will give in *miles* the radius of the visible horizon.

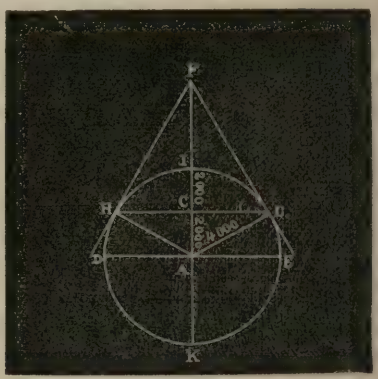
II. Square the number of *miles* in the radius of the visible horizon, and two-thirds of the square will express in *feet* the corresponding altitude.

These rules assume that the earth's curvature in one mile is two-thirds of a foot, and that the curvature increases with the square of the distance. They are not mathematically exact, because the altitude is regarded as an inappreciable fraction of the earth's diameter, and the intercepted arc and tangent are taken as equal.

Examples.—(1) From a mast 96 feet high the sea is visible on every side to a distance of $\sqrt{(96+48)}=12$ miles. (2) From a height of 15,000 feet, 150 miles. (3) A distance of 60 miles on the sea is visible from (two-thirds of 60^2) a height of 2400 feet.

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1. At what distance above the earth's surface wonld a person have to be, to see one-fourth of its surface?



It is proved in geometry that the area of the convex surface of a sphere is equal to the area of a great circle of such sphere multiplied by its diameter; and also that the area of any zone of a sphere is equal to the area of a great circle of that sphere multiplied by the altitude of the zone. Then, since the area of any zone is to the area of the sphere as the altitude of the zone is to the diameter of the sphere, it will be necessary to pass a plane through a sphere, cutting off a segment having an altitude equal to one-fourth of the diameter of the sphere, in order to have a convex surface one-fourth that of the sphere.

Considering the earth as a sphere, having a diameter of 8000 miles, the convex surface of a segment or zone whose altitude is 2000 miles, would have the required area. Let IHKB represent the earth; DE and IK diameters perpendicular to each other. Any point (F) from which one-fourth of the earth's surface can be seen must lie at the intersection of lines tangent to the earth at any or all points of the small circle bounding the required zone. Let H and B represent two of these points, AB and AH radii from A the center of the earth. The two triangles ABF and ABC having the angle BAC

common, and each having a right angle, are similar; and their sides about the angle BAC give the proportion AC : AB :: AB : AF. From this proportion, $AC \times AF = \overline{AB}^2$, or 2000 AF = 16,000,000, and AF = 8000. Since AI is 4000 miles, IF is 4000 miles, the distance above the earth from which one-fourth of its surface can be seen.

C. B. TOWLE.

Vallejo High School.

EDITOR JOURNAL: Please answer in your columns the following queries:

1st. Is *Eucalypti* the plural of Eucalyptus? Common usage in this State may sanction it, but is it correctly founded? To my mind the Latin plural is odious placed on English words. Even *genius* has an Anglicized plural in "geniuses." However, I will not say more, but leave the matter to you.

Eucalypti is correct. The word follows the same rule as *cactus*.

2nd. Is it correct to say "I *eat* (*et*) my dinner," pronouncing *eat* as *et*?

Now don't take up time to say "ate" is preferable, etc. Say yes or no, whether the above is *correct*, as it is to decide a dispute. Very truly yours.

C. M.

San Buenaventura, Cal., Feb. 16th, 1878.

Both forms are authorized. Ate is preferable.

EDITOR JOURNAL: In the December number appeared a criticism upon the use of such expressions as "would as lief," "would rather," etc. The article in question is from a correspondent of the *N. E. Journal of Education*, who claims to have served the whole matter to his readers "in a nutshell." I had a peculiar motive for investigating the contents of that shell, as I have always taught my pupils to use "would," and *not* "had," in all such expressions.

No answer to the criticism appearing in the January number, I venture a few thoughts upon the subject. I am prompted to do this by the fact that if no one speaks for the other side, we shall all appear to have endorsed the views of the Eastern gentleman.

The argument that many of the great masters in literature, such as Shakespeare, Milton, etc., used "had," applies with equal force in support of other expressions which no good grammarian of the present day would think of using. Such reasoning proves *too much*. It would be strange indeed if language were the only science in which time can make no improvement. Our grammars agree upon the essential principles of expression; these are sufficiently definite, and when they cut us an elegant and appropriate dress for a thought, why exchange it for one three hundred years old?

But Webster says that such expressions are probably corruptions from "I would," through the contraction "I'd." The expression, "I had as lief," carries upon its very face a strong objection to its use, because it uses *had* as a principal verb, in a sense contrary to any authorized definition of it; or rather, it uses the word without any special meaning.

Such constructions cannot be sanctioned upon the plea of greater brevity or harmony; and I find by actual experiment that children who become puzzled and confused over them, will readily analyze and parse the elegant, grammatical, and regular expressions, "I would as lief," etc.

In conclusion, I would ask the Eastern critic what object can there possibly be in engrafting another awkward and peculiar construction upon a language already bristling all over with them?

A. W. OLIVER,
Principal Gilroy Schools.

Educational Intelligence
FROM
STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

The Cosmopolitan schools of San Francisco have again become the subject of legislative interference. A bill has been introduced by Senator McCoppin, of this city, looking to the exclusion of the languages from the common schools of this State. At the date of writing,

the measure proves likely to pass both houses of the Legislature.

The bill to make the City Superintendent a member of the Board of Education, by giving him a vote in that body, has failed.

Mr. G. M. Gibson has been elected Principal of the Ocean House school, one of the suburban schools of this city.

There are ten vacancies in the Department, for which there have been fully sixty nominations. In all there are about two hundred applicants for positions in this city.

A proposition is afoot to require all high school teachers to pass an examination for special high-school certificates. This is an excellent idea. It is only reasonable to expect a higher degree of culture of high school teachers than of those of grammar and primary schools. And when there exists a strong probability that in some instances at least, no such superiority exists, then justice to the interests of our children requires a special certificate indicative of special fitness for higher work in education.

Joseph O'Connor's school, the Washington Grammar, had a very entertaining and successful exhibition last month, for the purpose of raising funds to purchase a piano. Financially, also, the exhibition was a success.

A complimentary benefit, given by the pupils of the Denman Grammar School, to Mrs. L. A. Clappe, for more than twenty-five years one of the most cultivated and popular teachers in California, was a grand success. Ill-health has compelled Mrs. Clappe to retire temporarily at least, from the profession she has done so much to aid and adorn. For refinement and taste, in school and out, Mrs. Clappe has had no superior on the Pacific Coast; and the JOURNAL was for a time much indebted to her earnest efforts in its behalf.

For more than a month a storm of wind and rain has been raging, almost continuously, in this city. Business has been practically at a standstill. The attendance at the schools has been more or less irregular, but not an hour has been lost from the daily session of the Department. As we write, the sun of March comes out. We hope for brighter days and sunnier hours.

SONOMA COUNTY.

Santa Rosa public schools have 600 pupils enrolled; Ukiah, 271, Healdsburg, 287. They have a new building and new furniture of the latest pattern.

A new school district, called the Ocean View school district, was created by the Board of Supervisors on Monday, February 4th.

A bill has been introduced into the Legislature to amend the law under which the schools of Santa Rosa are at present conducted.

A new Principal has been appointed in Manzanita district school; Miss Nellie Curtiss to the Hill district school. Miss Ella Robbertson is teaching in Knights Valley.

LOS ANGELES COUNTY.

Mrs. Arnold is conducting the Business College of Los Angeles since her husband's death. She made herself familiar with the business, and is perfectly competent to manage it.

Supt. Kimball's report of the city public schools shows a total enrollment of 1230 pupils, and an average of 1022.

Johnston & Co. have donated a lot in East Los Angeles to the Board of Education, on condition that they erect a school-house on it, at an expense of $2000.

The rate of apportionment of the County School Fund has been made by Thos. A. Saxon, County Superintendent, at the rate of $200 per teacher. Los Angeles district has twenty-seven teachers, and gets $5400.

They are discussing the question in Santa Monica whether they will levy a special tax to carry on the public schools, the funds having been used up, and are getting excited on the subject.

The total amount of money to be apportioned to school districts in Los Angeles County is $25,600. Santa Monica gets $400.

MONTEREY COUNTY.

The schools at Salinas are rapidly filling up.

R. L. Stafford has closed a four months' term at Gonzales. He is called an excellent teacher, and his pupils met him at the train to bid him good-bye.

The rains have so softened the plaster in the East End school, Salinas, that it fell and injured a teacher recently, and is likely to injure others unless wholly removed.

SISKIYOU COUNTY.

A friend from Yreka furnishes us with the following items:

"S. A. Scott has assumed the charge of the school at Etna, with Miss Emma Cummins as his assistant. Mr. Scott is an old teacher, and

brings to his work years of experience as well as earnest and untiring zeal.

"W. H. Laird is pleasa ntly located for his first term in teaching in Shasta Valley. We earnestly wish him success, and hope that the cause of education may receive new life through his efforts.

"Notwithstanding our progress in educational matters in the past, the palpable fact still remains, that one-fourth of our school children are not attending any school at all. As much as we regret to say it, it is a fact, and one which the friends of education should seek to solve. To be sure, a part of that number may have left school, and a part be still deemed by anxious and solicitous parents too young to attend any school; yet after all allow ances have been made there are still a goodly number who are loosing the benefit of the common school.

"We understand that Mr. De Nure, who is teaching in the Lincoln district, is holding a series of evening singing schools in his own and surrounding districts. Good results and pleasant times are reported."

SAN MATEO COUNTY.

The public school in San Mateo has opened for the spring term under the charge of G. W. Worthen, with Jennie Hoyt and Belle McLellan as assistants.

X. Y. Clark has resigned his position as principal of the Half Moon Bay school. We believe Mr. Brooks has been elected to the vacancy.

The school-items man of the Redwood *Times and Gazette* says he got lost in the mountains of that wild region in trying to find the San Gregorio school recently; but when he did reach it he found a very good school in progress, with nineteen pupils enrolled and twenty-four on the census list. Miss Bartholomew, a hard-working teacher, with poor accomodations, has had the school for two years.

Mr. H. J. Byrne has resigned his position in the San Bruno school. Mr. S. Lehan succeeds him. Both are said to be efficient teachers with good records. Mr. Byrne has been elected principal of the San Pedro school.

BUTTE COUNTY.

Mr. De Lencie has resigned his position in the second grammar department of the Chico school, and takes a position in the sheriff's office. Mr. De Lencie,s pupils got up an entertainment for him, and presented him with Webster's Unabridged Dictionary and an autograph album, in which each pupil wrote some sentiment of regard. Mr Cressy has been elected to Mr. De Lencie's place, and Mr. Langnecker to Mr. Cressy's place. Both are said to be excellent teachers

TUOLUMNE COUNTY.

The Sonora public school has enrolled about 250 pupils. The teachers are: Ansell Smith, Principal; Clay Hampton, first assistant; Mrs. Miller, second assistant; Miss Fahey, third assistant.

PLACER COUNTY.

Auburn has a new school district, called Sunny South school district.

MENDOCINO COUNTY.

The Ukiah public school has five teachers, the fifth teacher having been added at the beginning of last month. Miss Alice Chaplin was elected to the extra position, Miss Blanche McCowan taking her place at Indian Creek.

The public schools of Ukiah have been closed for a vacation of a few weeks, on account of the prevalence of diptheria and the bad weather.

The Superintendent has distributed a bound copy of the "Biennial Report of the State Superintendent" to each district library, and an unbound copy to each teacher and Board of trustees in the county.

The name of "Rancheria School District" was changed at a recent session of the Board of Supervisors, to Yorkville district.

Most of the districts in the county have secured teachers for the spring term.

I. N. Lafferty will teach at Willow district. E. M. Seaman will teach at Farley district.

A lady, who understands music, is wanted to teach in a good private family. If this should meet the eye of any person desiring information, address the Superintendent of Schools, Ukiah.

A number of Mendocino teachers would like to be enlightened (by the Hon. Editor or any of your numerous readers) as to the legal interpretation of the term "Grammar School," especially, as applied to our country schools.

SANTA CLARA COUNTY.

Prof. Norton, of the Normal School, will give a course of lectures in Santa Clara, on the following subjects: "Story of a Dead World," "The Physics of the Sun," "Pictures from the Stone Book," "Landscape and People of the Glacial Age," "World Building."

The school building on the Alameda is crowded to such an extent that the third grade class has to occupy the passage-way. A new building is loudly called for.

We believe the law (Murphy's Amendment to School Laws) to be a good one, and see no reason why the Normal School pupils of California should be placed in positions superior to the graduates of equally meritorious institutions.—*San Jose Times.*

Mrs. Kingsley, a worthy lady and accomplished teacher from San Francisco, recently from New York, has opened a select school on the kindergarten plan, at 578 Third street, San Jose. She brings the highest endorsements from citizens of San Francisco, where she conducted a school for a while. We hope she may receive a liberal support.

SANTA BARBARA.

The Oso Teaco public school has opened under the charge of Miss Jennie Cox.

Los Cruces is now a separate school district.

Miss Tucker's kindergarten in this city is prospering.

The Santa Barbara Society of Natural History is prospering. It has a large membership of ladies.

SANTA CRUZ COUNTY.

The schools have been closed for a week on account of the stormy weather.

ALAMEDA COUNTY.

The Alameda County Board of Education will meet in conjunction with the Oakland City Board of Education, on Wednesday, March 6th, 1878, at 9 o'clock A. M., at the Oakland High School building.

I. W. Otis is candidate for School Superintendent in Oakland. James Stratton, formerly Principal of the Prescott Grammar school, is also a candidate, we believe. S. S. Howell, formerly a teacher in the San Francisco High School, is also talked of as a candidate. Of course F. M. Campbell holds on to his chances also.

In the retirement of W. F. B. Lynch from the Superintendency, a position he has occupied for the past eight years, Alameda County loses an estimable gentleman, whose services to the cause of education can scarcely be estimated. Mr. Lynch is one of the ablest men whom it has ever been our fortune to meet. Cultured, original, and eloquent, he has ever graced the public positions he has held. We trust to see him again identified with some educational position; for nothing with which he has been connected in the past has ever failed to show evidence of his devotion to the cause of the moral and mental improvement of his fellow-men.

Examination Questions for Teachers.

The following excellent set of questions were used for State Certificates in New York, December, 1877. We are indebted to the *New York School Journal* for them. We consider this a very valuable set:

GRAMMAR AND ANALYSIS.

1. Define the verb and participle, and state the difference. 2. Define voice. 3. Do intransitive verbs have voice? 4. How is the passive voice formed? 5. What do you say of the verb *to be* with respect to voice? 6. Write a sentence whose predicate is composed of a copula and attribute. 7. Write a sentence whose verb is a copulative verb. 8. Write a sentence whose verb is attributive. 9. Is the verb *to be* ever an attributive verb? If so, write a sentence containing it. 10. Is the verb in the sentence, *the lesson has been learned*, transitive? Explain. 11. Give all the forms you know of the first person singular, indictive mode, present perfect tense, of the verb *strike*. 12. Write a sentence containing a verb in the imperative mode, passive voice. 13. Write all the tenses of the infinitive mode, in both voices, of the verb *lead*. 14. In what mode is the phrase, *if I should be there*? 15. In what mode is the sentence, *perhaps, I shall go*?

HISTORY OF THE UNITED STATES.

1. What country did Columbus expect to find by sailing west from Europe? 2. Why were the inhabitants called Indians? 3. Why was the country called America? 4. Did Columbus land upon or see the mainland of North America? 5. Mention one discoverer from one of these nations: English, Spanish, French, Portuguese, and his principal discovery. 6. By what right did European nations claim different parts of the country. 7. What were the principal colonizing nations, and what parts of the country did each settle? 8. What made the Indians hostile to the settlers? 9. What was the point of contest in the French and Indian wars? 10. How many were there, and by what names are they called? 11. By what treaty was the last settled? 12. What division of territory was made? 13. Why did the Indians fight in this war? On which side? 14. How was the country governed before the revolution? 15, How was it governed during the revolution?

READING.

1. Name the different methods by which a child entirely unacquainted with reading may be taught it. Which of these methods do you prefer, and why? 2. Name such physical rules as you think should be observed while reading. State the physical consequences of violating them. 3. Give a tabular view of the classes and sub-classes of the elementary sounds of the English language. Define the great classes. 4. Define phonic spelling. State its advantages. Mark according to Webster or Worcester the following words for pronunciation: Christmas, tuneful, corn, cooling. 5. Give the different ways of emphasizing

words. Name the various inflections. Give examples of each with appropriate marks. 6. What direction would you give classes with regard to marks of punctuation in reading. 7. Give, in the order you would put them, ten questions which you would ask pupils who were to read Warren's Address, p. 128, Randall's Reading and Elocution. 8. Carefully look over the selection entitled, "Remarks on Reading," found on p. 374, Randall's Reading and Elocution, and answer the following questions based on the selection: Meaning of the words, *pendant*, *philosopher*, *accessory*. What is the end to which all studies may point? Meaning of *subservient?* What evil effects may arise from too long application of the mind to one subject? Why? State the effect of dividing the attention between many subjects? Why? What general advice on reading may be given to everyone?

ARITHMETIC.

1. Multiply 876 by 429 and explain the operation. 2. Derive rule for multiplication of common fractions. 3. Reduce four-fifths, one-third .13, 1.7 to equivalent fractions having the common denominator 33. 4. How does adding the same number to both terms of a proper fraction affect its value? 5. Divide .04 by .0002, and explain the operation. 6. Reduce the circulating decimal .0486 to a common fraction. 7. New York is in latitude 40° 42′ N., longtitude 74° W.; the city of Mexico is in latitude 19° 25′ N., longtitude 103° 45′ W.: when it is 11 A. M. at New York, what time is it in Mexico? 8. Prove, "In any proportion the product of the extremes is equal to the product of the means." 9. Two-seventh per cent. of one-ninth is what per cent. of 100? 10. What are "days of grace," and on what are they allowed in the State of New York. 11. Five per cent. bonds are bought at 90 per cent., what is the rate of income on the investments? 12. What is the value in gold, of the currency dollar, when gold is at 105 per cent.? 13. When gold is at 103 per cent. and exchange at $4.85, what is the cost, in currency, at New York, of a bill of exchange on London for £50? 14. Derive rule for extracting the cube root of integers. 15. What is the "metric system," and what are its peculiar merits? 16. Name its principal units and tell their uses.

GEOGRAPHY.

1. What do you understand by mathematical geography? 2. What, by physical geography? 3. What, by political geography? 4. What, by descriptive geography? 5. What, by local geography? 6. How many States in the United States? Name them. Group them into divisions as ordinarily given. 7. Name all the Territories in the United States. 8. Name the "great lakes" which are between the United States and the Canadas. 9. What is the largest city in the United States? State its population, describe its location, and tell for what it is noted. 10. Name the river systems of North America, and state the proportions of country drained by each. 11. Name the mountain systems of Asia. 12. Name the countries of Europe which are now engaged in war, and also those which are especially interested in the results of the war, giving reasons for the answers submitted. 13. How much time should each pupil spend upon the subject of geography in a common school course? 14. What pieces of apparatus, as maps, etc., do you consider essential for the schoolroom when teaching geography? 15. State the general divisions which you are accustomed to make of geography when presenting the subject. 16. State the general plan which you follow when teaching advanced classes in geography. 17. How do you begin the subject of geography with primary classes? Mention the successive steps in the subject matter, and in the mode of presenting it. Outline the first year's course for the pupils.

Questions for Examination of First Grade Classes.

[Prepared by D. C. STONE, Deputy Superintendent of Public Schools, San Francisco.]

These questions are intended simply as an aid to the teachers of first grade classes in reviewing the work of the year, and as a sort of guide as to the scope and nature of the questions at the closing examinations in May. They may be asked as the judgment of the teacher may direct, either for written or oral examination, and at such times as may be convenient. The examination in geography will probably be in the style adopted in the special examinations of last August, and will embrace more than a hundred answers. The attention of teachers is called to the fact that credits will be deducted for misspelled proper names and geographical terms. A method of drill which has been pursued with much success in many classes is the following: During every recitation in geography let two of the class be stationed at the blackboard, at some distance from each other, and write down as many of the proper names recited as they can catch. At the close of the recitation five minutes may be spent by the class in correcting these.

It is intended to follow this sheet with a similar one at the beginning of each of the two succeeding months.

ARITHMETIC.

(10 *questions*—10 *credits each.*)

1. What principal will gain $24.22½ in 4 years 3 months, at 6 per cent.? 2. How many bushels will a bin contain that is 7½ ft. square and 6 ft. 8 in. deep (2150.42 in. to the bushel)? 3. (*a*) 24 is 8 per cent. of what number? (*b*) 33 is 2¾ per cent. of what number? (*c*) What per cent. of $240 is $13.20? (*d*) Find 33⅓ per cent. of 9-10. (*e*) Express decimally 25⅝ per cent. 4. A man buys three bills of goods amounting, severally, as follows: $525.35, $400, and $1163.75. On the first bill he gets a discount of 5 per cent. for cash; on the second 7 per cent., and on the third 8 per cent. What amount will pay all three bills? 5. Supposing that on the 1st of February English exchange is at the rate of 23¾ cts. to the shilling, and I wish to send $5280.50 to London, what will be the face of a draft on London for this amount? 6. Find the square root of, (*a*) 516961, (*b*) 182329, (*c*) 49-529, (*d*) 60 1-16, (*e*) 28 57-64. 7. (*a*) If the hypothenuse of a right-angled triangle be 60 feet, and the perpendicular 36 feet, what is the length of the base? (*b*) A house is 40 feet high; how long must a ladder be to reach to the top of the house if the bottom of the ladder be placed 9 feet from the wall? 8. (*a*) How any acres in a rectangular field 432½ rods long and 150m

wide? (*b*) How far from one corner of this field to the other? 9. A man has two lots: the first is 242 ft. square, and the second contains 9 times the area of the first; how many feet square is the second? 10. J. Morse bought, in Sacramento, a lot of land 7 3-11 rods square, for $5 per square rod. He sold the land at 5 cents per square foot; what did he gain per cent.?

NOTE.—Drill thoroughly in the following: 1 bushel= 2150.42 cubic inches; 1 mile=320 rods=1760 yds.=5280 ft. =63360 inches; 1 acre=43560 square feet. The area of a circle equals the square of the diameter multiplied by .7854. The circumference of a circle equals the diameter multiplied by 3.1416.

GRAMMAR.

(10 *words*—10 *credit each.*)

1. (*a*) Construct a sentence containing the perfect tense, indicative mood, active voice of *lay* (to place). (*b*) Construct a complex sentence containing the future perfect tense, indicative mood, active voice of *lie* (to recline). 2. (*a*) Write the plurals of *mouse*, *ox*, *brother*, *ally*, and *grotto*. (*b*) Tell the case of *whose*, *us*, *its*. *me*, and *Mary*. 3. (*a*) Write an interrogative sentence containing the superlative degree of *near*. (*b*) Write a declarative sentence containing the possessive case of *ostrich*. (*c*) Write an imperative sentence containing the comparative degree of *well*. (*d*) Write an exclamatory sentence containing the objective case of *I*. (*e*) Write a simple sentence containing a neuter verb in the imperfect tense. 4. As Horace Mann said, "The right to *hang* goes with the right to educate. We educate men, that *those* who are not born to be hung may not be hung for *having been born*." (*a*) Analyze the first sentence. (*b*) Parse the italicized words in the second sentence. 5. Give, in tabulated form, the principal parts of the following verbs: *go*, *flee*, *fly sit*, *rise*, *write*, *lie*, (to recline) *lay*, *catch*, *put*. 6. (*a*) In what three ways are clauses generally joined to principal members of a sentence? (6 credits). (*b*) What is a complex sentence? (4 credits). 7. Write a complex sentence containing an adjective clause on each of the following words: 1st. Scholars; 2nd. Grammar. 8. Change the following complex sentences to compound ones: 1st. As my father was old and feeble, we were obliged to proceed slowly; 2nd. When the storm subsided the tired sailors tried to obtain a little rest. 9. Write three simple sentences about the Russo-Turkish war, and then combine them into one complex or compound sentence. 10. Name five ways in which a noun may be used. (5 credits.) State the difference in the use of the letter *s*, as used in the inflections of *nouns* and of *verbs*.

GEOGRAPHY.

(10 *questions*—10 *credits each.*)

1. Where are the following capes: Flattery, St. Lucas, St. Roque, Clear, Sable, Conception, Blanco, Finisterre, Prince of Wales? 2. Name five of the highest plateaus in the world; five noted volcanoes, with their locality, and five of the largest river basins in the world. (⅕ credit for each.) 3. How are springs produced? (5 credits.) Why does the water in an artesian well come to the surface while it does not do so in a common well? (5 credits.) 4. Name five characteristic animals of the Arctic zones, five of the Temperate zones, five of the Torrid zone, and five of the largest birds in the world. (⅕ credit each.) 5. (*a*) To what two principal causes may we attribute the ocean currents? (4 credits.) (*b*) Name three great currents. (3 credits.) (*c*) What current largely influences climate in Oregon and California? (3 credits.) 6. Why is a southerly wind in California in winter usually accompanied with rain? 7. Where are Plevna, Adrianople, Calcutta, Singapore, Liverpool, Archangel, Sebastopol, Potosi, Rio Janeiro, Lake Albert Nyanza? 8. (*a*) Give the latitude of San Francisco, New York, London, New Orleans, Victoria (British Columbia). (*b*) Define Latitude, longitude, the equator, the arctic circles, the tropics. 9. Name five large cities with which the trade of San Francisco is important, mentioning the principal articles of export or import. Model: Manilla, in the Philippine Islands, sugar, tobacco, gunny-bags. 10. Name five noted mountain peaks in California, with their locality. (5 credits.) Bound California. (2 credits.) State the principal articles of import from Tahiti, Sandwich Islands, Washington Territory, Aleutian Islands, Mexico, Costa Rica. (3 credits.)

HISTORY OF UNITED STATES.

(10 *questions*—10 *credits each.*)

1. State the event for which each of the following dates is noted: 1497, 1512, 1520, 1620, 1541, 1634, 1755, 1776, 1812, 1850. 2. For what are the following names of Indian chiefs famous: Powhatan, Osceola, Tecumseh, Capt. Jack, King Philip? Name the American general who turned the tide of war in the South after Gen. Gates' want of success; the British general who was defeated at Yorktown; the Union commander at Gettysburg; the Confederate commander at Antietam; the Union officer who was forced to surrender Fort Sumter to the Confederates. 3. How did the United States acquire Florida? Alaska? Texas? California? Arizona? 4. Name five battles of the Mexican war. What American general commanded in the north of Mexico? What general directed the expedition against the city of Mexico? 5. For what is Decatur noted? Gen. Sherman? Admiral Farragut? Alexander Hamilton? Robert Morris? 6. Name the original thirteen States. What State was the first one admitted after the Revolution? Which State was divided during the Civil War? Name five States carved out of the Louisiana purchase. 7. What possessions did the French hold in America at the beginning of the French and Indian war; what causes produced that war, and to what results did it lead? 8. Give an account of the Missouri compromise. 9. Name the Presidents of the United States in their order, 10. Name five great American inventions of the past century with the author of each. State the area and population of the United States in 1783 and in 1876.

BOOK NOTICES.

THAT LOVER OF MINE. By the author of "That Girl of Mine." Philadelphia: T. B. Peterson & Brothers, 306 Chestnut street. San Francisco: I. N. Choynski.

This book has been described as one of intense interest. The interest is of the same character as attaches to the "Dick Turpin" novel. To express it mildly, it is highly sensational. It is said the author visited Texas in order to make her Texan scenes and life natural. We should judge she had been born, trained, and educated in Texas. We do not see any good use for the sensational novelette of this style, and we do not consider such mental food at all nutritious or healthful. But some crave excitement—must

have mental whisky or brandy—and to such this will be acceptable.

THE PRIMARY TEACHER.— *The Primary Teacher* is a journal devoted to the interests of primary instruction in America. It is published in Boston, and is, so far as we know, the only journal of the kind in this country. The subscription price is only $1 per year. Persons wishing to subscribe can send to this office—508 Clay street. Mr. H. P. Carlton is agent. He is also the agent for THE PACIFIC SCHOOL AND HOME JOURNAL, and the "Ferns of North America," a work now publishing in parts, at $1.00 per number. It will contain all the ferns of this countrv figured, besides three chromo-lithographic plates in each part, and is a first-class botanical production, by one who has the best collection of ferns in the country, aided by the best writers on botany. Send to H. P. Carlton, 508 Clay street.

THE HAND-BOOK TO ARIZONA: Its Resources, History, Towns, Mines, Ruins, and Scenery. Amply illustrated, accompanied with a map of the Territory. By Richard J. Hinton. Payot Upham, & Co.: San Francisco. American News Company: New York, 1878.

We feel quite certain that there will be a good demand for this book, not alone by those directly interested in Arizona, and engaged in developing its resources, but by the general reader also, for it is an interesting description of a comparatively new and intensely interesting country. Some features of it are equal to Yosemite or the Yellowstone; in fact, we doubt if Colorado Canyon can be paralleled on the face of the earth. This work must be invaluable to one desirous to know the real condition of Arizona. It gives its physical and geological features, mineral resources, the developed mines, mills, noted valleys, towns, agricultural resources, climate, military posts, flora, fauna, Indian tribes, early explorers, Missions, ancient people, and the ruins, etc., etc., all from the most authentic and reliable data, confirmed and verified by the actual observation of the writer himself. Mr. Hinton is a trained journalist, a close observer, and a good writer, and he has done a good work in this volume, and we are confident that he will receive, privately at least, the thanks and congratulations of many a reader. A large map of the country is attached, drawn on the basis of the official Land Office map, under the supervision of State Surveyor-General of Arizona. There is also a Spanish map of date 1775, and a Jesuit map, dated 1698, showing the Spanish settlements and missions in those early years. An appendix gives condensed a large amount of information on routes of travel, fares, mining laws, land offices, tables, etc., etc.. The volume is well illustrated.

THE MARCH MONTHLIES.

The *Popular Science Monthly* is the exponent of a high civilization. It is doing more to make modern science familiar to the American people than all other contemporary periodicals. The March number is up to the usual high standard. An exceedingly able and *appropos* article on "Technical Education" will specially interest our teachers at this time. A full description of the Telephone, with illustrations, is excellent. Herbert Spencer continues "Ceremonial Government," and Prof. O. C. Marsh has an illustrated article on "Introduction and Succession of Vertebrate Life in America." In the editorial department, Dr. Youmans discourses in his usual pungent and logical style on "Hell."

These are but a tithe of the March number, which embraces also articles by Tyndall, Dr. Thurston, Chas. Ricket, E. R. Leland, and Gaston Tissaudier.

Among the good things in *Appleton's Journal*, we have space to mention only the opening chapters of a new serial by Mrs. Edwards, entitled, "Jet," the continuation of "By Celia's Arbor," several finely illustrated articles, George M. Towle's "Eighteenth Century in England," and a number of very good short stories.

Harper's is essentially the great American magazine. The March number contains some magnificently illustrated articles, such as "State and Society in Washington, "Old Flemish Masters," "Fret Sawing and Wood Carving," "Grand Menan and Quaddy Boy," and of special interest to teachers, "Summer Schools." The two novels of the year, "Macleod of Dore," and "The Return of the Native," are continued. The departments are excellent, as usual.

Scribner's for March opens with a beautifully illustrated article, "A Trip to Central America." Edward Eggleston's "Roxy," and Adeline Trafton's "His Inheritance" continue with unabated interest. Every teacher on this coast should read W. G. Sumner's short article on "What Our Boys are Reading." It speaks of an evil too prevalent in our midst to be longer ignored. The other illustrated articles in this number are "An American Colony in a Normandy Manorhouse," "An Earthquake Experience," "Dresden China," and "Kenyon College." There is some excellent poetry, and the departments are good as usual.

Harper's Weekly wages its battle against partisanship, repudiation, and ultramontanism as effectively as of old. The pencil of Nast and pen of Curtis do a work far more powerful in their civilizing tendencies than is done in any other journal in America. The influence of all the Harper publications is altogether for good.

They tend to nationalize—to Americanize the various elements of these States; to preserve the national honor; to hold up to the American peoat all times and under all circumstances, the duty owed to country rather than to party. May God speed the work.

St. Nicholas is, as usual, inimitable. It speaks well for the taste of the American people that this incomparable children's magazine is so popular. It is impossible, in our space, to give an adequate description of the contents of each number. We advise, not children only, but those of a larger growth, who enjoy a pure literature coupled with beautiful illustration, to read this charming magazine.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR HIGH SCHOOL WORK.

It is proposed to devote a small space of the JOURNAL to interests pertaining to High Schools. This department of public instruction possesses an importance inferior to no other, and should receive adequate attention. We hear much and read much of the position the primary and low grade schools should occupy; that they should receive the first attention from school boards; be first in the estimation of the public; the high schools always giving way to them in case of necessity. This may all be true, but in yielding assent to these statements we must not unintentionally permit ourselves to occupy a wrong position, or suffer our minds to entertain a prejudice against high schools. The primary school is important, from the fact that in it the child commences the acquisition of knowledge from books and teachers. The high school is important, since in it the last impressions are given. Incorrect ideas formed in early childhood may be corrected in the high school. Here the child ends what may be called the first epoch of its life, and it goes forth to assume new duties and new relations. How important that this last training should be correct. Upon no teacher in the child's career does the responsibility fall so heavily as upon that one who has the last words. These last words are not given at a time when the mind is wholly untempered, but when a certain amount of logical strength and a quickening of the perceptive faculties have rendered the pupils able to detect the difference between reality and sham. The words of a judicious teacher at this time are powerful and abiding. The notions of early years, often crude and imperfect, are here corrected; and as habits of thought have been cultivated, the pupil is able to give proper weight to the instruction and advice he may receive. The importance of the work renders it necessary that all teachers engaged in it should fully realize its responsibilities. No words can express the great value of the work of a true character-builder. We all need assistance, and each one has something good to say. Let this be a mutual aid department, where every one both gives and receives good thoughts. All are cordially invited to send communications to the editor.

We should be pleased to have teachers and others interested in high school work, give us their views upon a course of study for advanced classes in those cities and towns where it is necessary to combine them to a certain extent with the grammar grades. It does not follow that a line of study which was adapted to an academy or high school twenty years ago, or is adapted to such schools now east of the Rocky Mountains, is just the best thing for all or any of the high schools in California. We believe that much good might be done if several teachers would study this subject carefully and give us the results. The questions are, What are the most important subjects to be pursued in the time allotted, and in what order should they occur?

High Schools.

We occasionally hear the remark that high schools should form no part of a State system of education, and at every session of our State Legislature a bill is introduced, intended either to seriously cripple them in their work or abolish them entirely. Opponents of high schools assert that the State should only provide instruction for the people in the three R's; that everything beyond should be obtained only by those who are so fortunate as to possess considerable wealth; that the studies therein pursued are not intended to benefit the workingman, being accomplishments of elegant leisure; that there is danger in educating the laboring classes too much, as they may aspire to positions which the wealthy wish to monopolize, and, in short, that all the complex net-work of interests which we usually denominate the *State* would be best subserved by restricting the educational advantages of the great mass of the people to the narrowest possible limits. These people stand where their forefathers did a century ago—what was good and sufficient then in all matters pertaining to the education of the rising generation is good and sufficient now. But let us ask these conservative gentlemen how it is in other matters—that of traveling for instance; would they prefer the lumbering stage-coach to the palatial car? Would they use the mail, or avail themselves of the lightning method if they wished to communicate with a distant friend in haste? Would they employ the old methods, or that universal laborer, the steam engine, to sow, or reap, or plane, or saw, or perform any of the countless thousands of varieties of work it can do so well? In a word, would they be satisfied to live and work as people lived and wrought a century ago? The answer is obvious. Civilization has made rapid advances since then; thousands of activities are now all about us which then were unknown, and all these imperatively demand a correspondingly intellectual expansion by all those who are to use them. The three R's might do for a man who traveled on horse-back, carrying a flint-lock gun, but they are found wanting in an age of steam and fulminating powder. As nature is compelled to yield her secrets for the service of man so must man be instructed in the operations of her laws. The only hope for a continued advance in civilization is in a corresponding advance in universal education. The great mass of the people must be familiar with the forces which are constantly and universally applied in the leading industries of the day. Pluck the cerements from an Egyptian mummy and breathe into his dusty body the breath of life, and you would produce an exponent of a race which these law-makers would have to people the fair valleys and hill-sides of our State, and which they would be pleased to represent in our legislative halls.

One of the most accomplished teachers in the State will prepare a series of articles for class use upon the subject of botany. They will be specially adapted to those

schools in which but a limited time can be given to the subject, and for those teachers who have not given particular attention to this important and interesting department of natural science.

MR. EDITOR: Will you ask your readers for a demonstration of the proposition: "The square, described on the hypothenuse of a right-angled triangle is equal to the sum of the squares described on the other two sides," when there are given the following conditions?

Let ABC be a right-angled triangle, right-angled at A. Produce AB (the base) till BD is equal to AC. On AD construct a square, ADOR: it will be equal to $(AB+AC)^2$. From D on DO lay off DS = AB and draw SB: on OR lay off OE = AB, and draw ES and EC.

1st. Prove all the triangles equal to each other.

2nd. Prove CBSE a square on BC.

3rd. Prove CBSE = $\overline{AB}^2 + \overline{CA}^2$.

4th. $\overline{BC}^2 = \overline{AB}^2 + \overline{AC}^2$.

This is one of the methods of proof that I give my class in geometry, after they have had the demonstration, as given in their text-book, and I find that they enjoy studying out the solution. L. E. T.

Oakland High School.

The Study of Zoology in the High Schools.

No other branch of natural science, perhaps, is of so much practical interest and importance as this; no other so easily takes captive the mind of the child. This is in the order of nature, as observation is the first means of reaching the perception; indeed, it is one side of perception itself.

So much of the grammar and high school courses, as they now are, is book-work, and only so little of it is of the sort which sharpens the observation, that something is seriously needed to correct this fault. We heap up facts, "Ossa on Pelion," till the children are likely to need patent adjustable backbones to carry it all, such as it is; they learn to see, not at all, because they are made to stare obliquely at other people's images of things, instead of being taught to look directly at the objects themselves.

In the high schools, far more might be done in the short time allotted to this branch, if the pupils came to the work with minds wide open, with eyes already taught to notice what they see.

Yet much can be done even against disadvantages like these. Since no school locality is without animal life of some kind, subjects are always at hand. Entomology, because insect forms are met with everywhere, offers the original teacher, even if he knows nothing of it scientifically, the best field for work. Sea-shore, bay-beach, lumber-yard, creeks, hedges, gardens, and orchards are teeming with insect life.

If nothing else can be done, the habits of insects known to be hurtful to the products of the garden and orchard may be studied. Making collections and classifying according to some observed resemblance, until technical knowledge for actual classificaion can be acquired, will prove profitable work in many ways.

In the high schools, a six months' course, which takes in detail the study of a small portion of one class of animals, and leading general facts about each of the four sub-kingdoms, is one which seems to me most valuable. Too much ought not to be attempted.

The thorough study of one creature—*not its picture*—its anatomy, its habits, its range in time and region, its food, its enemies, etc., will be worth more than catalogues of fine names and dull facts. In this work, the pencil—the "microscope" of Agassiz—is the most effective teacher of "how to see." Learn to draw objects accurately and you have learned to see

them accurately. Then I would say, in teaching zoölogy, lay emphasis on two things: drawing of the objects to be studied in whole and in part, and written descriptions of the same, which shall be accurate accounts of what *is seen* only.

A line of study in this branch for high schools will be given hereafter if desired. I. H.

Oakland High School.

SUGGESTIONS FOR GRAMMAR SCHOOL WORK.

It is expected that every principal and every teacher in the grammar schools of this State particularly, will take a lively interest in the welfare of this department of THE PACIFIC SCHOOL AND HOME JOURNAL. Communications and suggestions relating to our school work are respectfully solicited, but no communication containing more than one page of the JOURNAL can be published at the same issue. What studies should be taught in the grammar schools, how and when taught, shall be a leading feature. If the unifying of the work can be successfully done, and the feelings of the teachers unitedly enlisted, the education of the masses will be a certainty—it will necessarily follow. It is a positive shame that a bright pupil should remain in our schools for eleven years, and finally leave without being a good speller, a good reader, a good writer, (penman) a good calculator, a good grammarian, or a *good thinker*. At present, we must acknowledge that such is the fact. Instead of our educating the children as we should, they are educating us into a bad habit—that of passing them from grade to grade, and out of our Grammar schools into the High schools almost wholly unprepared to receive the instruction that should be given them. This is our fault, and should be remedied. If we are half asleep when conducting a recitation, the children will be dull, careless, and indifferent, or they will be into some mischief for which they themselves are not to blame. A teacher should have life enough about her to make interesting to a first grade class a lesson of any kind—be it from McGuffey's First Reader, even. But to make a lesson profitable, the teacher must have some fixed plan and some point to make, otherwise she will make a sad failure, and lose her influence over the class. Hence, the necessity of being united.

Suppose that the Board of Education of San Francisco should direct that all first grade teachers meet on a certain day at 9 A.M., and arrange their work for the whole term, stating just *what* should be done, *when* it should be done, and *how* it should be done, the whole matter could be settled by 3 P. M. of that day. Then there could be no confusion for that term. Let the second, third and fourth grade teachers have their meetings and arrange their work likewise. One day each term for each teacher would warrant uniformity after a short time, and the result would be a marked inprovement in our schools. No body wants any drones in the Department —they'd better be *stung out*.

WE have necessarily omitted this month the "Suggestions for Primary School Work," as well as "Suggestions for Ungraded Schools." One of San Francisco's ablest primary teachers has contributed some valuable suggestions, which will appear in our April issue. We shall also publish, each month, examination questions for pupils. Teachers will find these of the greatest use in their daily work. They are not intended for cramming, but as guides to indicate the direction in which teachers should train their classes.

Flour is adulterated with lime, chalk, marble, bone-dust, barytes and other substances.

THE PACIFIC

SCHOOL AND HOME

JOURNAL.

VOL. II. SAN FRANCISCO, APRIL, 1878. No. 2.

SIMPLE EXPERIMENTS IN PHYSICS.

BY VOLNEY RATTAN.

[Professor of Natural Sciences, San Francisco Girls' High School.]

BUOYANT FORCE OF LIQUIDS AND GASES.

You are familiar with several of the experiments which I shall try before you to-day, but it is not likely that you have studied their answers or results. We too often question nature as a prattling child does its parents—heedless of the answers.

Let us attentively note the replies which the water in this jar makes to our inquiries. I drop upon its surface a ball of cork. You say it floats. So, also, does this wooden ball; but the wood is nearly submerged, while less than a fourth of the cork is below the surface of the water. Here is a leaden bullet and a small potato of the same size. They sink, but the bullet reaches the bottom first. The four solids are of the same size and shape, but their weights are different. Two are supported by the water, but not with equal ease. The water requires a larger hold, as it were, upon the heavier solid; but with all the hold it can get—the entire surface—it cannot lift the bullet. Surely the water is not partial in its treatment of these solids which present to it equal and similar bulks to be acted upon. It must be lifting upon the potato and the bullet with the same force—a force a little greater than the weight of the wooden ball, and equal to several times the weight of the cork. You express this fact in a general way by saying—Anything heavier than water sinks, anything lighter than water swims, and anything just as heavy as water neither sinks nor swims. The last statement must be theoretical with you; for you probably never saw anything *just* as heavy as water.

With this rude but tolerably exact pair of scales, (Fig. 6.) I think we can find out whether the water really does lift upon anything submerged; and, if so, how much. Below the round platform on the right, I hang a piece of lead pipe, which very nearly balances the jelly glass hanging from the other end of the beam. A little water poured into the glass brings the beam to a level. When I push upward on the lead I seem to lift it, though, really, I am only helping the jelly glass to lift it, as the taut strings above the lead and the downward movement of the glass attest. Nor do I help much; for, you see, a teaspoonful of water which I drop into the glass does the same work. Indeed, if the scales were very sensitive, a single drop would cause this upward movement of the lead. Now

I move this goblet of water upward under the lead, so as to submerge the lead if possible. The lead is evidently pushed up by the water in which it will not sink, though I move the goblet upward until the lead is raised three inches. Setting the goblet on the table, I pour the water out of the jelly glass, and add weight to the platform until the lead sinks beneath the water in the goblet. The beam is horizontal again, and the lead end of the scales seems to be pulled down with a force measured by the weight of the glass at the other end. I remove the goblet and the lead rests upon the table holding its end of the beam down. I pour water into the glass until the beam is horizontal. It is evident that the water in the goblet must have pushed upward upon the lead just as much as the water in the glass is now pulling down. Is the bulk of the water in the glass equal to the bulk of the lead? We shall see. I put the lead into the glass, and add enough water to cover it. Making sure that the glass is level, I make a mark opposite the surface of the water (*a*, Fig. 6.) Replacing the lead, I add weight to the platform until the beam is level. Observe the space between the surface of the water in the jelly glass and the mark which shows where the surface was when the lead was submerged. Do you see that the bulk or space taken up by the lead must just equal the space between that mark and the water? The lead plus the water filled the glass to the mark. Taking away the lead must leave a space equal to its bulk. Removing the goblet once more, I let the lead rest on the table. By pouring water into the glass I bring the beam to a level; and, you see, the water just reaches to our mark.

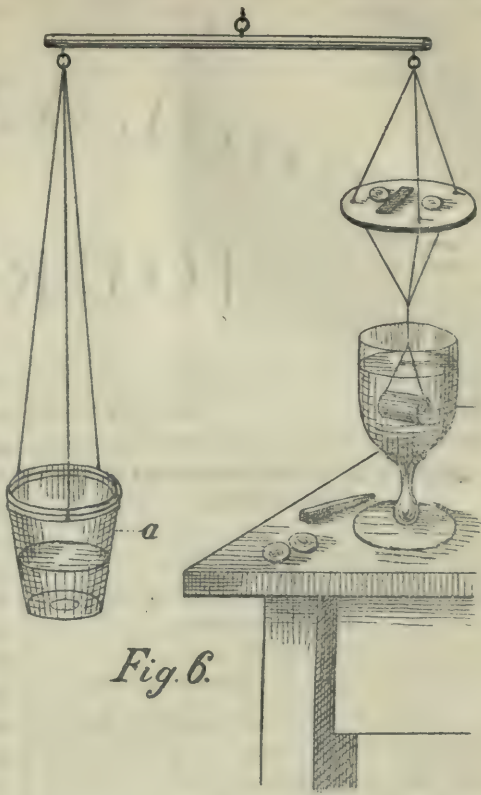


Fig. 6.

Evidently the weight of a mass of water equaling the bulk of the lead just measures the lifting force of the water upon the submerged lead. We call this lifting force the buoyant force of water. If, instead of water, we use any other liquid the result must be similar. This tumbler contains kerosene, a liquid lighter than water. Its buoyant force must be less than that of water. The wooden ball which floated on water sinks in kerosene. Here is another liquid called glycerine. The potato floats upon its surface. Glycerine must be heavier than water. With this wire I sink the cork to the bottom of the jar. A quick movement sets it free and it rises through the water to the surface. Here is a toy balloon which, when I let go of it, rises to the ceiling. Evidently the cork and the balloon rise for like reasons: one is buoyed by water; the other by air. Since air is very much lighter than water, its buoyant force is very much less. But do you see that when we weigh anything with a

spring balance we do not get the true weight? The indicated weight is the true weight less the weight of air enough to fill the space occupied by the substance weighed. With this spring balance I weigh a cobble stone submerged in water. It weighs about two pounds. As I raise it out of the water the index falls to the three pounds mark. A mass of water equal to the bulk of the stone must weigh about one pound, which weight is a measure of the buoyant force of the water. The weight of a body of air equaling the size of the stone, is only about one seven-hundredth of a pound; hence, the difference between the real and indicated weight is usually of no practical account. If, however, the thing weighed is not much heavier than air, allowance must be made for the buoyant force of the air. A pound of feathers is quite perceptibly heavier than a pound of gold, if both are weighed in air on a grocer's scales.*

THE TEOCALLI, OR SACRED HIGH PLACES OF THE ANCIENTS.

BY PROF. G. V. LE VAUX.

(Nevada, California.)

TWO PAPERS—PART II.

As population increased and natural inclination or exigencies of situation compelled men to leave their native hills, and spread themselves over the plains, many miles from mound or mountain, their idea of high places, in some instances, became more or less modified. Some races, or individuals, abandoned the publicity of the high place for the privacy of the silent grove; whilst others adopted both plans, adapting them to certain forms of worship. We find Abraham building altars, visiting high places, and planting groves—all for purposes of divine worship. On the plains of India, Persia, and Chaldæ, as well as on those of Mexico, Arizona, and Peru, we find the remains of gigantic temples crowning the summits of still more gigantic artificial mounds. In these temples were preserved the records of the race to which they belonged, with such historical and scientific knowledge as had been committed to writing. They thus became the depositories of all the light—religious and secular—which was known amongst men. In the course of time these records, etc., were looked upon with superstitious reverence, and came gradually to be regarded as sacred and inviolable—direct revelations from the gods. Being written in symbolical characters, their original meaning was soon lost, their custodians alone retaining the key to their interpretation. Thus commenced "the science" since known as "priest-craft." The gods of the ancients were men whose names had become associated with some deed or deeds, afterwards many times magnified during their written or traditional transmission from age to age, until at last a clever but unscrupulous priest, cunning politician, or would-be prophet seized the idea of deifying them with an eye to his own personal advantage. Then a temple was erected over his tomb, or on the mound which marked its site, and men were taught to worship as a god the person whom their fathers had ignored, persecuted, or merely honored as a man. Round this temple-tomb, which men regarded as the most suitable place for the adoration of the new god, succeeding generations raised altars and shrines to gods or heroes of lesser note, and the space thus honored was enclosed with a wall or other protection, and regarded as "holy ground." It was in

* If possible, the teacher should have a pair of scales similar to those used by druggists; but a beam like the one figured can be constructed. Put the point of support exactly midway between the points from which the weights are suspended. The point of the support must be above the latter. Pupils should repeat all the experiments, and work problems depending upon the principles learned.

imitation of this custom, prevalent amongst surrounding nations, that Manassah, king of Judah, "built altars for all the hosts of heaven in the two courts" surrounding the temple of Jerusalem. (See, 2 Chron. xxxiii : 3–5.) We find evidence in almost all religious systems, of the existence of holy places enclosed by walls, embankments, palisades, or upright stones, as at Stonehenge, England. The object of these enclosures seems to have been to keep off the profane and prevent irreverent intrusion. In many instances the temples were roofless, their only covering being the canopy of heaven, the devotees believing it would be sacrilegious and impious to place anything between their place of worship and the abode of the Supreme Deity. It was thus that our pagan ancestors worshiped the Creator in the forests of Britain, Germany, France, and Ireland.

The pyramids of Mexico, India, Persia, and the Isles of Polynesia are similar in form and construction to those of Egypt with very few exceptions, and those exceptions may be attributed chiefly to the difference of climate, building material peculiar to the respective localities, etc. In the former countries these structures are known to have been sepulchers and sites of public worship. Is it not reasonable therefore to infer that those of Egypt were also sepulchral monuments as well as religious edifices having symbolical meanings? The absence of human remains in the chambers of the Egyptian pyramids may justly be ascribed to the frequent conquests of that country by successive races of men who would naturally have little or no compunction in rifling the dead, or in scattering their sacred ashes "to the four winds of heaven."

In the days of Cortez there was a vast artificial mound or "Teocalli" of pyramidic shape in the city of Mexico, whose summit was adorned with a vast temple dedicated to *Quetzalcoatl*, under the name of *Mexitli* (the Mexican Mars). The Mexicans corrupted their ancient religion, forgot the mild and noble character of the good Quetzalcoatl, and actually made him the recipient of human sacrifices. Some of the Spaniards taken in battle were burnt on his altars to the utter horror and amazement of their comrades besieging the city (See Prescott): yet when he lived on the earth he himself would not permit the shedding of blood even to the gods. The sacrifices offered on this mound could be seen by the assembled nation, and must have been an awful and impressive sight, more especially when the victims were fellow-men. Twenty miles from Mexico, near San Juan, there are two large artificial mounds or high places, surmounted by the remains of temples once dedicated to the Sun and Moon. According to Baron Humboldt, "one of them is 150 feet high and the other about five feet lower." Attempts to perforate them have revealed the existence of several large internal chambers, which bear every appearance of having been repositories for the dead. Surrounding them, at some distance on the plain, are several smaller mounds, dedicated to various minor gods, bearing names which indicate the existence of *stellar* worship amongst the ancient peoples of this region. It has been ascertained that these also contain internal chambers which exhibit more or less evidence of sepulchral origin.

The barrow, taphos, high places, or rude clay mound was the monument usually erected by semi-civilized man to mark the last resting place of his general in war, or benefactor in peace. His veneration, natural instinct, or some kindred feeling led him to worship the departed hero or some other deity on the sacred mount constructed and dedicated by his own hands. Hence the existence of the altar or temple we almost invariably find on its summit. These "high places" were doubly sacred to

the builders, and consequently the objects of much veneration and religious superstition amongst their remote and less intelligent descendants. But as the men of "the barbaric ages" advanced in architectural knowledge, their increasing taste and skill prompted them to erect high places of stone instead of clay, or at least to decorate the mound or tumuli with a "stone facing." Such were the famous "altar mounds" of Oulam in Persia, and Palenqué Mexico; and such was the origin of all, or nearly all, those everlasting pyramids and temple-tombs of both worlds, whose sacred heights were for ages "the holy of holies" to countless millions of our race.

The striking similarity and frequent coincidence of the various observances associated with the Teocalli, taken in connection with their dual uses and apparently common origin amongst nations far removed from each other historically and geographically, evidently indicate an original unity of race, and a long continued ethnological connection between the people of both hemispheres; or else they afford conclusive proof that similar circumstances, mental or physical, have always produced similar results—similar arts and habits, similar science and religious development—irrespective of time, distance, or human kinship.

TEACHERS AND THE SCHOOL LAW AMENDMENTS.

BY PROF. W. W. ANDERSON.

[Principal Santa Cruz High School.]

It is not strange that teachers feel alarmed as to the result of the attempts being made by our legislators to amend the school law. Crude and absurd as some of these "amendments" seem to the practical educator, they are undoubtedly the embodiment of wisdom in the estimation of their originators and supporters. To the average "member" nothing is so simple and easy of comprehension as educational matters, and it is not to be supposed that he will permit his honest convictions to be stifled by the consciousness of his views being contrary to the views of those actively engaged in the school-room. Probably if our sage law-makers were to give utterance to their honest opinions, they would frankly avow their belief that teachers know nothing about the defects of the school law, and that, moreover, they have no right to express an opinion on the subject. I have known these views entertained, and not by any means carefully concealed, by representatives of at least average ability and qualifications. Yet I have known these same representatives, or their immediate successors, in the short space of three or four years, abandon nearly all their own preconceived opinions, and give effect by legal enactment to the mature judgment of the pedagogues. The results have been almost marvelous, and now he would be a bold man who, in Ontario, would make any proposition involving a material change in the school law of that province, unless he was satisfied that at least a large body of its teachers favored that change.

These proposed "amendments" will be made, and the anxiety on the part of those most conversant with schools will continue while teachers remain isolated as they are now. There are those in politics who would gladly be guided largely by the opinions of teachers, if these opinions could be obtained. We are not in a position to give weight to our opinions. Individual members of the profession may button-hole an influential man in one place, another in another, and others may strive to make their opinions felt by appearing in print, but these efforts are futile after all. They are only the individual efforts of individuals acting on their own responsibility. What is needed is some

way of obtaining the views and conclusions of the profession at large, and presenting these to the public in a formal way, as such. It is no assumption to say that we understand as well as any one else the defects in our school law. If our experience in the school-room, if our daily familiarity with the most important parts of the law, have not given us at least as clear an idea of what "amendments" are needed as the public at large, or even our members of the Legislature have, we must, as a body, be utterly unqualified for the duties we have assumed.

How, then, is this expression of opinion to be obtained? Through Teachers' Institutes or Associations. I have heard a prominent educator in this State deprecate any discussion on such subjects by the teachers, on the plea that they were not competent to give an opinion. Not competent! Why not? Because they have not tried to give utterance to their views on these points, and when some august personage from some distant city is present, they feel reluctance to take the floor. Our teachers are, if I may judge by those I have met since coming to the State, fully the peers in ability of those in other parts. All that is wanted is a beginning. Once it is understood that the discussion of the school law and its defects, the examination of teachers, and the text-books used, are part of the regular programme of the Institute, teachers will not fail to take a keen interest in that part of the proceedings, and to manifest that interest by a statement of their individual opinions. No matter how crude these opinions may be at first, the discussion will lead to broader and more correct views. Thus, in time, we should have, in a tangible form, the opinions of those whose duty it is to work out the real object of the law. These opinions, moreover, would largely reflect the views and wishes of the parents and trustees, for teachers would, even more than now, seek opportunity to interchange opinions with those among whom they labor. To accomplish this, it would be necessary to set apart a certain time at each Institute for these discussions. Some persons, not the most prominent members of the Institute, should be previously selected to read essays, or deliver short, pointed addresses on the points intended to be discussed. In the notices calling the Institute these points should be announced, so that all would be more or less prepared to take part. As the Institutes meet only once a year, it would be highly beneficial if in each county, volunteer Associations were formed, which might meet quarterly or semi-annually. Judging from my own experience in connection with such associations, I am satisfied every teacher taking part in them would be amply recompensed for the time occupied thereby; and if properly worked, they would do more than anything else to advance educational interests in the State. Of course I do not suppose that these Associations would be only local, but that, as Prof. Le Vaux has wisely suggested, they should send each one or more representatives to the State Convention, providing always that that convention can be held, in future, at a time when teachers desiring to do so can attend.

The results of these Association and Institute discussions would soon be acknowledged. It would, as I have already said, enable teachers and others to interchange their opinions and to formulate, as it were, the amendments really needed in our school laws. Politicians would then have clear light on educational matters; and those who through narrowness, or from other causes, desired to mutilate and destroy, instead of advancing and strengthening, would soon find themselves powerless. I have assumed that there are amendments needed to our school law. It would be supererogation to attempt to prove it. True, I meet those who firmly

believe that educationally we are ahead of "all creation"; but as the JOURNAL has well said, it is evident changes must be made if we are to advance. California has just reason to be proud of her schools. The question is—Will she rest content with what she has achieved, or will she strive to be foremost in the race in which she has so many and such powerful competitors? No rash hand should be laid on any part of our educational machinery, but every one deserving a place in the profession must desire to render the law more efficient, to accomplish more with the outlay incurred, and to raise the standard as high as possible. Can that be accomplished without the united effort of our teachers? How can that united effort be secured except in Institutes and Associations?

Is it asked how Associations may be formed? Easily enough. Let half a dozen teachers in a county take the initiatory steps of calling a meeting at a suitable time and place, inviting all other teachers to attend, and the friends of education generally, if deemed best. Let them also agree faithfully to go to the meeting prepared to take part in the proceedings, and do all in their power to make it a success. The co-operation of the County Superintendent would be a great benefit. The "platform" of the Association could be as broad as desired, and would, of course, include the discussion of "methods," etc. Being purely voluntary, there would be a much freer expression of opinion than at the Institute, where every one seems to feel that he is "in school," and must quietly listen, whether or not he believes. In his excellent biennial report, State Superintendent Carr makes several suggestions which would, if enacted as law, materially affect the working of the public schools. At the first meetings of the Associations there would in these "suggestions" be material for discussion; and probably for discussion again and again. With one or two exceptions, these "suggestions" seem to me extremely necessary to increase the efficiency of our schools. Perhaps many of us would change our views if we had opportunity to hear both sides. If these suggestions should be heartily endorsed, would not the legislature at its next meeting readily enact them? If opposed by teachers generally, would they be at all likely to receive legislative sanction? I hope we shall soon have vigorous Associations in every county in California.

A LETTER FROM BOSTON.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

At the last meeting of our School Committee, Mr. Samuel Eliot was chosen Superintendent of the Boston schools, and Mr. John D. Philbrick retires, after having served in that office twenty-one years. He has discharged its duties with ability, and to the satisfaction of all competent judges. He has always manifested courtesy and consideration toward the teachers, and has proved himself their friend; the changes which he has recommended to the Committee have invariably been in the right direction, and it is matter of regret that some of his suggestions were not adopted. Those who sometimes blamed him for certain deficiencies in the schools, forgot that he had no authority to do any thing except under the direction of the Committee; he could only recommend, and the misfortune was that sometimes his earnest recommendations were neglected for years. I think he was better acquainted with the condition of the public schools in the different States of the Union and in its principal cities, and with the systems prevailing in each, than any other man we have among us. Nor were his investigations confined to his native land; he had

studied diligently the most important points relating to public education in the more advanced nations of Europe. His claims to acknowledgement for faithful and beneficent service would be best shown by exhibiting a double-headed grammar school of twenty-one years ago by the side of one of the present year. The improvements under his administration extended also to other departments—to the primary and to the high schools. I know Mr. Philbrick would not claim for himself all the honor due to such achievements; he gladly refers to the valuable work performed by wise and accomplished members of the Committee. Still, a very large portion of the credit belongs to the indefatigable Superintendent.

Mr. Samuel Eliot, his successor, was Principal of Trinity College, in Hartford, and afterwards Head Master of the Girls' High School, in Boston. He is a gentleman of cultivation and experience; is very much interested in the cause of public education, and will without doubt, do all he can to improve the Boston schools.

Two years ago, the Boston School Committee consisted of 120 members. But few attended to their duties. Meeting after meeting adjourned for want of a quorum. Most of the members never visited the schools, took no interest in them, and did not understand the questions brought before the Board. Now the number is twenty-five, and, as a consequence, every one is a worker. The difference between the two Boards in point of efficiency is remarkable. Not until two years ago was there any regular examination of applicants for positions in the Boston schools. Now, no one is eligible for service as a teacher who has not a certificate of qualification based on an examination. The annual report states that before the adoption of this rule, "there were not wanting those who had come to consider our schools as a kind of eleemosynary institution for the support of a class that would shrink from dependence upon ordinary means of charity. A certain kind of nepotism had come to be recognized as legitimate in the supply of teachers to our schools, and the result was that not a few were employed and paid by the city who never should have been appointed."

No severer comments have ever been made upon the former methods of appointing teachers than these by the present Committee.

This evil, as well as other short-comings in the Boston schools are in process of being corrected by the efforts of a more efficient school committee than the city had under the old system, aided by a Board of six Supervisors. The newspapers now contain communications asserting that the Supervisors have rendered no benefits to the schools proportional to the salaries they have received—$48,000 in four years. But an enumeration of the services performed by the six Supervisors, since their appointment, will show that this statement is the result of want of information.

First—Examination of 410 candidates for positions as teachers.

Second—Uniform examinations of the graduating classes of the grammar and high schools, involving a considerable amount of labor in the preparation of questions, etc.

Third—Uniform examinations of certain classes in the high schools.

Fourth—Examination of the graduating class of the Latin school.

Fifth—Examinations and monthly reports upon the evening schools.

Sixth—Revision and completion of the course of study for the Latin school; a work of great value, and one requiring much time and labor.

Seventh—Preparation of a uniform course of study for the high schools, which is in use throughout the city.

Eighth—Careful examination and con-

sideration of the course of study for the grammar and primary schools.

Ninth—The making of nearly 5000 visits to separate class-rooms and teachers, for the purpose of inspection and oral examination.

Tenth—The recording of the results of these visits—with a judgment upon every teacher and class, with respect to teaching ability, modes of government, conduct of class, results of examination, ventilation, condition of room, etc.

Eleventh—Miscellaneous matters referred to the Supervisors by different Committees of the Board.

I have given these particulars, that you may see what the duties of the Supervisors are, and because I think before long you will have to copy in San Francisco some parts at least of this system. I think under it and the new law, a much brighter day has dawned upon the Boston schools; and that if people will only have patience, they will soon see the excellent fruits of the admirable work done by Committee and Supervisors.

"But all work and no play
Makes Jack a dull boy."

This is reason, if no rhyme. Let us leave the schools and enter the "Old South Church," where the ladies of Boston and vicinity, and even of New York, are holding a Fair, for the purpose of raising money to save this historic edifice from demolition, and to preserve it as a memorial of the times of the Revolution. Considering all its associations, the "Old South" may be regarded as the most memorable building in Boston. Within its walls patriotic meetings were held during the Revolution, and Warren, Hancock, Samuel Adams, Otis, and Quincy addressed their fellow-townsmen. From its galleries the party sallied forth to throw the tea overboard. In it Whitefield preached, and Washington stood. How many saintly and eloquent ministers have spoken within these walls! The simple edifice, full of grand ideas and noble sentiments, is more eloquent than any orator. It appeals to us to preserve it as fragrant with the memories of the Revolution; it speaks to us by its very presence of the virtues and sacrifices of the fathers, and calls upon the living to show that they remember and are grateful for the services of the illustrious dead, and that they treasure every memorial of them as carefully and tenderly as a child cherishes the portrait of father or mother.

Many people, not only in Boston, but throughout the country, have determined, if possible, to save this building. The owners ask $400,000 for it; a very large sum. Strenuous efforts are now made to raise this amount by a large and patriotic committee, whom the most beautiful, intelligent, and cultivated women of Boston assist by personal exertions and hard work. Will not California contribute something to this noble object? I should like to be present and see the smiling faces of the Committee upon the reception of a handsome contribution from the Golden State. They need all they can get, for they have undertaken a gigantic task. Give them a lift.

This fair, of which I was speaking, added, I am happy to say, $40,000 to the funds of the Committee. How brave the old church looked as I approached it! The walls, and the steeple as far as the belfry, were covered with evergreens. A bridge across Milk street (other bridges cross water) connected the edifice with the beautiful *Transcript* building. On entering, the church, at first glance, looked like a forest, so numerous were the trees and so thick the shrubbery; but soon the eye gazed with delight upon festoons, wreaths, and flowers of every color and from every zone. All that the most exquisite taste and skill of woman could do to render the scene attractive, charming, enchanting, was accomplished. I cannot begin to give you

a description. I shall confine myself to mentioning a few of the curiosities of the exhibition, that is, interesting memorials of old times. I hope I shall not aggravate you by alluding to these ancient specimens of which you have none in California.

First and foremost, there was a representation of an "Essex-county yeoman's sitting-room and kitchen a hundred years ago," contributed and arranged by Maj. Ben. Perley Poore, of Newburyport. A portion of the floor of the church was partitioned off so as to give the appearance of two rooms, one of which represented the sitting-room and the other the kitchen. The sitting-room contained an ancient fireplace, with complete brass service; a cellaret, a very rare piece of furniture, corresponding to our modern refrigerator; desk, table, corner writing-chair, old English clock, a corner cupboard, containing pewter dishes, china, etc.; embroidered curtains, being a part of the first furniture of the White House, put in during John Adams' administration.

The kitchen had a huge fire-place with andirons, spit, crane, pot-hooks, and other furniture, including a copper camp-kettle used by Alexander Hamilton; an old-fashioned spinning wheel and reel; a roller-towel spun and woven in 1774; a dresser with bright pewter platters and other dishes; very old leather-backed chairs; an oaken chest brought from England in 1640; and many more specimens of kitchen furniture and utensils preserved in the Poore family. Above the mantle-piece were two old Queen's Arms that "granther Young did *not* fetch back from Concord busted."

The children were crowding round *Mother Goose's* House, with its quaint roof and chimneys, and the emblematic owl and pigeon over the door. There were two signs; "Elizabeth Goose: Her House," over one door, and "Thomas Fleet, Printer," over another. At the door of the printing-office there sat a comely damsel in antique costume, selling copies of Mother Goose's Melodies; and at her own threshold Dame Goose vended paper boxes shaped and colored like bricks, and filled with bon-bons. Upon each was inscribed:

"You take this brick—you save a brick
Forever in the Old South to stick."

Also she had for sale little pots of beans with brown, crispy pork at the top—all a clever imitation in candy. At the left of the house was a children's play-ground, where Mother Goose and various little children personated the famous characters of the Mother Goose Melodies, and gave exhibitions of Mother Goose Games, such as "Here We Go Round the Barberry Bush," "The Old Woman in a Shoe," "Bo Peep," "Ding Dong Bell," etc. Inside the house was an ideal portrait of Mother Goose, with the inscription: "Elizabeth Foster, known in the literature of the nursery as Mother Goose, was born in Charlestown, Mass., in 1665; married Isaac Goose in 1693; became a member of the Old South Church in 1698. Her melodies were first published by her son-in-law, Thomas Fleet, in Pudding Lane, Boston, in 1719. She died in 1757, aged 92 years.

Next we came to the following advertisement:

1777. 1877.

AUNT TABITHA

Will welcome ye goode people and kinsfolke to her SPINNING BEE,

at ye fireside in ye Big Stone House on Washington Streete (over ye Bridge).

There will be Hatcheling, Carding, Spinning on ye Big Wheele and ye Little Wheele.

Aunt Tabitha will Singe some of ye Olden Tyme Songes.

N. B. Ye Signe of the House will be ye Candle in ye Windowe.

Ye FEE will be a short shilling, equal to 15 cents colony monie.

We went in, and found the old ladies in ancient costume very agreeable. The flax hatcheling, spinning, and *candle dipping*

were carried out in old-fashioned style. The baby in the 1731 cradle was soothed to sleep by Aunt Tabitha's quaint ditties. The burning logs added much to the picturesqueness of the scene.

I will name only a few of the many curious and interesting articles I saw:

A copy of the Breeches Bible, printed in London in 1577; valued at $1000 in gold.

Washington's cane, Hancock's watch, a lock of Major André's hair, a part of the wick of the torch carried by Gen. Putnam into the wolf's den. A doll made of old English oak in 1773, as good as new. Key of Jonathan Edward's study, in Stockbridge. Sleeve-buttons, boxes, and napkin-rings made from the old Elm which stood on Boston Common. The famous War Eagle was there which shared the campaigns of the Wisconsin Regiment.

I never attended a more attractive fair, and it was worth going a great distance to witness the hearty enjoyment of the children.

COMMON FRACTIONS.

BY FRANK H. DARLING.

[Santa Cruz County.]

The following four rules for working fractions are in use by numerous teachers of this State. Believing that they are superior in more respects than one to Robinson's eight, covering the same ground, and with the hope that they may at least benefit those having no better method of teaching the theory of fractions, I have them published. Subjoined to the rules are several examples and definitions; it is of great importance that besides having the rules committed to memory and neatly written for reference in their composition books, the pupils should also remember *these* definitions as well as others their teachers may give them to learn.

Should these or any other rules be used, teachers would do well to adopt the following plan for class recitations:

Send as many as convenient of a class (or join two or more classes together) to the blackboard; all then write the same example at the teacher's dictation. See that all pursue the same method; require each and all to figure neatly and rapidly, and never allow them to omit the signs (=, +, —, ×, ÷, and Ans.). The one finishing first cries out, One, the next, Two, the next, Three, and so on, till *all* have been heard from. By this means each in the class accustoms himself to think and work rapidly, desiring, at least, not to be last.

What is herein contained is not intended particularly for such as have their course exactly planned or laid out for them, but for those teachers and others in all parts of the State who have to make and choose methods for themselves; if, by the latter, these rules be used faithfully three months, ten times that amount of time can be saved, besides having every child over twelve years of age, of ordinary ability, able to handle all sorts of fractional examples with ease, either mentally or on the blackboard.

RULE FOR ADDITION OF FRACTIONS.

Write the fractions and whole numbers in a vertical column, fractions under fractions, units under units, etc. (*See example below*). *To the right of the first fraction re-write all the fractions* (*connected by the sign* +) *in a horizontal line. Find the L. C. D. of the denominators which is written to the right of the fractions under a straight line; divide this L. C. D. by each of the denominators; multiply the quotients obtained, by the respective numerators, and write the products, connected by the proper sign, over the L. C. D. Add the numerators and place the sum over the L. C. D., then reduce the resulting fraction to its proper form, and add it to the sum*

of the whole numbers. The last sum is the required answer.

Example:

$2\frac{1}{3}$
$16\frac{5}{8}$
13
$4\frac{5}{12}$
$23\frac{7}{24}$
58
$1\frac{2}{3}$
$59\frac{3}{4}$ Ans.

$= \frac{1}{3}+\frac{5}{8}+\frac{5}{12}+\frac{7}{24} = \frac{8+15+10+7}{24} = 1\frac{3}{4}$

2	3	4	6	12.
2	3	2	3	6.
3	3	1	3	3.
	1	1	1	1.

$= 24$. L. C. D.

RULE FOR SUBTRACTION OF FRACTIONS.

Write the subtrahend under the minuend, fractions under fractions, units under units, etc. Always subtract whole numbers and fractions separately; first the fractions which are written to the right of the first upper fraction, same as in addition. Reduce the fraction to L. C. D. Connect the new numerators (written over the least common donominator) by the sign, —, and subtract the new numerator after the minus sign from the one before it. Write the remainder over the L. C. D.; the resulting fraction is the difference of the fractions, and must be added to the difference of the whole numbers for the final answer. Borrow one whole one if necessary from the minuend to make the minuend fraction larger than the subtrahend fraction.

Example:

$14\frac{3}{5} = \frac{3}{5}-\frac{7}{9} = \frac{27-35}{45}$ Absurd. Hence 1 (borrowed from 14, leaving 13) $= \frac{5}{5}$ and

$3\frac{7}{9}$

$\frac{5}{5}+\frac{3}{5} = \frac{8}{5}$, then $\frac{8}{5}-\frac{7}{9} = \frac{72-35}{45} = \frac{37}{45}$

$10\frac{37}{45}$ Ans.

RULE FOR MULTIPLICATION OF FRACTIONS.

Reduce all mixed numbers to improper fractions; all whole numbers to fractional form by writing 1 (one) under them.

Multiply numerators together for a new numerator, and then denominators for a new denominator; reduce the resulting fraction to its lowest (or proper) form for the final answer.

Never omit the two signs (× and =); always cancel when convenient.

Examples are unnecessary in this case.

RULE FOR DIVISION OF FRACTIONS.

Reduce all mixed numbers to improper fractions, all whole numbers to fractional form by writing one under them. Invert all the terms of the divisor, change the sign of division (÷) to multiplication (×) and proceed as in multiplication of fractions. Never omit the signs (÷, ×, and =) and always cancel when possible.

Examples:

(1.) $4\frac{1}{2} \times 2\frac{2}{3} \div 6\frac{1}{8}$ of $\frac{1}{3} = 3\frac{45}{49}$ Ans.

Operation: $\frac{9}{2} \times \frac{8}{3} \times \frac{8}{49} \times \frac{2}{1} =$ (after cancellation) $\frac{3}{1} \times \frac{4}{1} \times \frac{8}{49} \times \frac{2}{1} = \frac{192}{49} = 3\frac{45}{49}$ Ans.

(2.) $4\frac{5}{8} \div 6\frac{2}{8} = \frac{37}{8} \div \frac{50}{8} = 37 \div 50 = \frac{37}{50}$, or

$\frac{37}{8} \div \frac{50}{8} = \frac{37}{8} \times \frac{8}{50} = \frac{37}{50}$ Ans.

It is often very perplexing to answer *why* the terms of the divisor are inverted in division of fractions; very likely it always will be perplexing, but is as satisfactory a method as is the (Davies') explanation that, "*it saves the trouble of reducing both terms to the same denomination,*" after which it is necessary to divide the numerator of the dividend by the numerator of the divisor for a new numerator, and the denominator of the dividend by that of the divisor for a new denominator, obtaining always one (1) for the denominator of the answer.

Examples:

1. $\frac{6}{9} \div \frac{3}{9} = \frac{2}{1}$ Ans.

2. $\frac{7}{8} \div \frac{2}{8} = \frac{3\frac{1}{2}}{1} = 3\frac{1}{2}$ Ans.

3. $4\frac{5}{8} \div 6\frac{1}{4} = \frac{37}{8} \div \frac{50}{8} = \frac{\frac{37}{50}}{1} = \frac{37}{50}$ Ans.

Or, according to the regular rule :

$$\frac{37}{8} \div \frac{25}{4} = \frac{37}{8} \times \frac{4}{25} = \frac{37}{50} \quad \text{Ans.}$$

Please observe that this method makes division of fractions (as it should be) the converse of multiplication of fractions, viz : in multiplication we *multiply* both terms (before the sign $\times$) by both terms after it, while in division of fraction we *divide* both terms before the sign, $\div$, by both terms after it.

DEFINITIONS AND SUGGESTIONS.

1. *Fractions* imply division ; hence

2. Always reduce fractions to their lowest form (by means of division = cancellation). To show which form of a certain number, (= a mixed number = an improper fraction) ask a pupil if he would offer 6-4 of a dollar for a cord of wood, or $1\frac{1}{2}$ dollars? $ 12-3 for a coat or $4? etc. The pupil then readily sees that answers to questions must always be reduced, when possible, to mixed numbers.

3. Always reduce the denominators to the *least* common denominator, and not *common* denominator. It saves *time*.

4. Never allow mixed numbers to be reduced to improper fractions in either subtraction or addition. At first pupils will not understand how or why one (=1 $= \frac{2}{2} = \frac{3}{3} = \frac{7}{7}$, etc.) is borrowed from the upper whole number to add to the minuend fraction in case it be smaller than the subtrahend fraction. Drill them till they *do*. Always subtract fractions and whole numbers separately.

5. These (or other rules) attempt no explanations ; the teachers must be able to supply them. Colburn's Mental Arithmetic is one of the best of aids. Common sense and ingenuity are the best aids. Robinson's Practical is very good from page 86 to page 97. *All* his fractional examples are good.

In an example involving subtraction and addition of fractions, make only one operation ; for instance :

$$3\frac{4}{5} = \frac{4}{5} + \frac{2}{3} - \frac{4}{15} = \frac{12+10-4}{15} = \frac{18}{15} = 1\frac{1}{5}$$

15 L. C. D.

$$+6\frac{2}{3}$$

$$-1\frac{4}{15}$$

$$9\frac{1}{5} \quad \text{Ans.}$$

NOTE.—I would make acknowledgements to Professor Bernhard Marks, (now of Central Colony) L. W. Reed, Esq., San Francisco, and Clarence M. White, of Santa Cruz County.

A PASTOR PUZZLED.

BY THOMAS K. BEECHER, D.D.

[Elmira, New York.]

I puzzle many a weary hour over such facts and problems as follow :

In this city is an exceptionally industrious woman, past sixty years of age, with three daughters, three sons ; herself a widow. The youngest child is say, thirteen. All hands are poor. No special virtue or vice to be predicated of any of the family except the mother. She is eminently hard-working, and skilled in her work as a laundress.

Hard times come on. The young folks have no trade. They cling together as a family. The old mother earns the entire income. People say to the young folks, "Shame on you, to be living on your mother that way." The boys earn, occasionally, fifty cents a day stripping tobacco. Now and then the girls have a job sorting rags at forty cents a day. Occasionally they get ten pounds of hair to pull. The girls lend a hand and help the old mother wash and iron.

But those boys I keep thinking about. They do not illustrate all the cardinal virtues, of course. The street has been their playground from infancy. They are, in my judgment, far better boys than any of my father's sons would have been with the same advantages. I have looked

around to find places for those boys to learn trades. Carpenters, masons, shoemakers, tinsmiths, plumbers, broommakers, all reply they "don't want any boys. "There is no profit in taking boys." Here begins my puzzle.

If either one of these boys will drop into a dry goods store and "lift" a bolt of silk, or snatch a watch from a jeweler's, and run away slowly, with a "hue and cry" at his heels, he will be soon arrested by a policeman. He will plead guilty of grand larceny and will receive sentence, as a first offense, to the admirable Reformatory in this city, recently opened and now in operation.

In this Reformatory he will enjoy the hospitality of buildings and grounds that cost eight hundred thousand dollars. He will occupy a roomy, clean, and well-ventilated cell; an iron bedstead and sweet bedding, with permission and leisure to beautify his new home. Moreover, he will have steady work found him, yet by no means excessive. He will be taught a trade. He will be fed on food nutritious and scientifically wholesome. His small vices, chewing, smoking, and drinking, will be peremptorily ended. A resident surgeon will supervise his environments. Evenings he will attend school. Sundays he will receive the ministry of able clergymen. Books and newspapers judiciously selected will be within his reach. Finally, if he be docile and industrious, he will receive *credits* from month to month, entitling him to successive enlargements amounting almost to freedom and self-control.

In short, he will be so trained and treated that. if I knew of any way of getting my own son into that institution, without his being guilty of crime, I should not hesitate to commit him at once.

Now my puzzle is this: Where three sons of a widow are guilty of poverty only, I see no chance for them. But when guilty of grand larceny their prospects brighten.

Question 1. Shall I advise that boy: "Go, grab a watch! It is the only way to get into a good home school. The jeweler will get it back right away. Run slowly! Plead guilty, and go straight to the best home you ever had"?

Question 2. If I may not tell him this, what shall I advise?

Question 3. Is not the admirable discipline of a well-conducted reformatory a far wiser and more nearly symmetric educational scheme than the book and brain culture of our common schools?

Question 4. Have intelligent and Christian masters and mechanics any duties toward the sons of widows?

I find no fault with the Reformatory experiment. This is a step in the right direction. My puzzle is that poverty should damage a boy's prospects more than crime! That the State of New York cannot help a widow's son to manhood until he breaks a law, and receives her blessing disguised as a penalty.

What answers?—*Christian Union.*

TEXT-BOOK ECONOMY.

BY JOHN SWETT.

[Principal San Francisco Girls' High School.]

[An Extract from a paper on Political Economy, read before the Teachers' Mutual Aid Society.]

The text-book question seems to be the engrossing subject before the State Legislature. It is evident to the average legislator that the enormous cost of text-books is sapping the industries of the State. Shallow-minded political economists attribute the hard times and soup houses to the drouth, to the currency, to over production, to stock-gambling, and to Dennis Kearney; but the *real* cause is the text-book swindle.

Compared with Text-book Bills now before the Legislature, the fifteen million Spring Valley Water Works Bill, the Gas Monopoly Bill, the Railroad Bill, the Irri-

gation Scheme, the Contractors' Omnibus Bill, the Stock-gambling Bill, the Constitutional Convention, etc., etc., all are of incidental importance.

Here is the inexorable logic of figures. There are 200,000 school children in this State. The cost of text-books per child is $50 in round numbers. Total cost per year, $10,000,000. It is fair to assume that every child attends school on an average 100 years. Grand total, $1,000,000,000.

No wonder tax-payers are poor, and that book-publishers and authors roll in ill-gotten gains. Furthermore, I state on the authority of one of our leading daily papers, that so great is the burden of carrying, to and from school, the immense number of text-books that children are forced to use, many feeble-bodied children are made round-shouldered and crooked-backed—ruined both in body and mind. The condition is an alarming one to all true reformers.

Here is my scheme of reform and economy :

You will all agree with me that *one* text-book in school is all that is required. I have no sympathy with the extreme reformers—the psychological metaphysicians who hold that no text-book whatever is needed in school ; that the teacher should be a "living text-book," etc., etc., etc.

I take conservative ground in favor of *one* book. That book ought not to exceed *three* inches wide by *four* inches long, and not to exceed 138 pages. This book can be published by the State at a cost not exceeding $9\frac{99}{100}$ cents wholesale. It can be sold by retailers at 10 cents a copy, with a magnificent profit of $\frac{1}{100}$ of a cent. The retailers will grow rich at that. I have in my possession just the book we want, published in Connecticut, 1791, by "Noah Webster, Jun., Attorney at Law." It is a combination of Reader, Speller, and Grammar, and contains a "Federal Catechizm" on the Constitution, and a "Farmers' Catechizm," (Grangers') and an article on the Spelling Reform Question. This book was good enough for our grandfathers and grandmothers, and it is good enough for our children. In fact, it is better than the modern trash drawn out in infinite "series." Now the copyright of this book expired in 1811. We can steal it with impunity.

I propose to organize a Joint Stock Text-book Company, 1,000,000 shares at $10 a share. You can all become shareholders ; go to Sacramento during the week's vacation, and lobby the bill through.

The stock in this Company is a bigger thing than the "bonanza" stock. This book is "adorned with wood-cuts," in the highest style of antique art. It has solid board covers, and will last. With this book we can capture the Grangers. Listen :

EXTRACTS FROM THE "FARMERS' CATECHIZM."

Q. What is the best business a man can do ?

A. Tilling the ground, or farming.

Q. Why is *farming* the most *innocent* employment ?

A. Because farmers live much by themselves, so that they do not see so many bad examples as men in cities do. *They have fewer opportunities to cheat* than other classes of men.

This book needs only two pages additional to modernize it.

I. The New Silver Dollar Table, to wit :

9 silver mills = 1 gold cent
9 silver cents = 1 gold dime
9 silver dimes = 1 gold dollar.

II. The last set of arithmetical questions put out by the Board of Examination.

THE ECONOMY OF IT.

Annual cost of Books under the present system.....	$1,000,000,000
Cost under the proposed system of State Publication.....	19,980
Saving to the State	$999,980,020
Deduct from this the cost of copywright, cash paid to J. S. T. B. P. Co.....	10,000,000
Net gain	$989,980,020

These figures may seem a little wild to some of you who are arithmetical sharps, but I assure you they are quite as reliable as are the estimates made by members of the Legislature on the subject this winter.

The Secretary of the Board of Education has been elected Secretary of our Company, and the books will be opened at the rooms of the Board, No. 22 City Hall, for subscriptions to-morrow, at 9 A. M.

PRIMARY READING.

BY PROF. O. S. INGHAM.
[Healdsburg, Sonoma County.]

In this article I shall theorize but little. I shall attempt rather to offer some practical suggestions on teaching primary reading, for the benefit more especially of those whose experience in the work of the school-room is somewhat limited. I shall not attempt to treat the subject exhaustively, to lay down rules to be followed with mathematical precision, but simply to indicate methods which, in my own experience and observation, I have found to be valuable and practical. Of course these methods can be modified by amplification, by abbreviation, or any other change, to adapt them to the wants of different classes or schools, as the judgment of teachers may direct.

In their sports, in their joy, in their grief, the elocution of children is perfect, because natural and unperverted by wrong teaching. If, when the child reads from a book the same language he uses in his sports, he is unnatural in tone and style, listless and uninterested, what follows? That the method of teaching the child to read is most grievously at fault; for reading is simply talking from a book, and the style, tone, inflections, emphasis, *all* should be the same—*precisely the same in both cases*. If reading aloud is talking from a book, or talking the thoughts contained in the printed language of the book, then should the child who reads with "the spirit and the understanding," also read as naturally as he talks.

The object of reading should be the acquisition of ideas by the reader; the object of reading aloud should be more especially to impart ideas or thoughts to the listener; to effect the desired object in either case, the reader should comprehend fully and clearly the thoughts and ideas contained in the language.

Among the causes powerfully operative in making reading unnatural and uninteresting, and consequently profitless to so many children, may be mentioned the following, viz:

1. The subject-matter is not adapted to the child's comprehension.

2. The preparation is not thoroughly made.

3. The exercises are not thoroughly conducted—the full understanding of the thoughts and ideas is too often sacrificed to an ill-judged desire to make haste.

Before the lesson is read by the class every *new* word in the lesson should be carefully noticed and explained by the teacher till understood by the class. If there is a picture connected with the lesson, call the attention of the class to it—notice its details. Well adapted pictures are sometimes great helps to the understanding of the lesson.

The teacher should then read the lesson carefully, each member of the class following the teacher with eye, ear, and understanding. At the close, the teacher should ask such questions as would be necessary to test the pupil's knowledge of the subject of the lesson. Before reading the lesson, the class should write and pronounce correctly every word in the lesson.

The points I have tried to make will, perhaps, be best illustrated and enforced by an example. Take, for instance, the 34th Lesson, pages 74 and 75, of McGuffey's Second Reader. After the necessary

preliminaries the teacher might ask the following questions, the object of which is to give the class a clear conception, generally, of the subject under consideration; to assist the class to obtain a knowledge of the meaning of the words, phrases, allusions, etc., of the lessons; and to develop the judgment, cultivate the moral sense, and improve the taste of the pupil.

General Questions.—What is the story about? What were the names of the boys? Did Sam give the poor man money? Why not? Did Harry give the poor man money? Why not? Did the poor man get any money? Who was the better boy? Why? Should we be kind to the poor, the sick, the blind? Why?

Particular Questions.—Paragraph 1. Where was Sam going? What time of the year? What time of the day? (Par. 12.) What was Sam doing as he walked along?

Par. 2. How did Sam get the book? How did Sam feel as he walked along? Why did he feel happy? What is money? What is money for? Where do men get gold, silver, and copper? What is meant by "happy"?

Par. 3. To what place did Sam come? What is a "high road"? Whom did Sam see? What does "blind" mean? What is a "gate"? What is a gate for? What was the blind man doing? Why was he there? What is meant by "at length"?

Par. 4. What did the poor man say? What does "poor" mean? What does "pray" mean? How much money did Sam give the poor man? What does "gave" mean? What is "bread"? What is bread for? Of what is bread made? Of what is flour made? How do men get wheat? What does "nothing" mean? What had Sam done with his money?

Par. 5. What is meant by "what!"? What does "yes" mean? Who is meant by "I"? Who is meant by "you"? What is meant by "spent all his money"? Who is meant by "his"?

Par. 6. What did Sam do then? What does "sad" mean? What does "very sad" mean? What did Sam see coming up? What is a "carriage" What does "fine" mean? Who was in the carriage? What does "came up" mean?

Par. 7. As the carriage came up, what did the blind man do? Why did he hold his hat? What does "stood" mean? What does "held" mean? What did Harry say to his mother? Who are meant by "us"? What does "let" mean? Who is meant by "his"?

Par. 8. What did Harry's mother do? What did Harry do with the cents. Did he put the cents in the poor man's hat?

Par. 9. Where did Harry throw the cents? Why did he throw them into the hedge? What is a hedge? What is a hedge for? What is a hedge made of? What is meant by "as far as he could"? Could the blind man find the cents? Why not? Was Harry a bad boy? Why?

Par. 10. What had Sam done? What is meant by "turned back"? What did Sam see? Who is meant by "he"? What is meant by "throw"? What did Sam think when he saw Harry throw the cents into the hedge?

Par. 11. What did Sam do, then? Where did he look? Did he find the cents? What is meant by "till he found them"? What is meant by "them"? Whom did he find the cents for?

Par. 12. Did it take Sam long to find the cents? How long did it take him? What is meant by "lost his dinner"? What is meant by "almost"? At what time of day do we eat dinner? What is meant by "too late"?

Par. 13. What is meant by kind"? What is meant by "truly kind"? Who was truly kind? What was Harry, then? Who is meant by "which"? Who is meant by "you"? What is meant by "do you think"?

Par. 14. Whom did the poor man thank,

do you think? What is meant by "thank"? What is meant by "thanked most"? Who is meant by "his"? What is meant by "in his heart"?

After the above or similar questions have been asked and satisfactorily answered, the class are prepared to read the lesson. During the exercise, the attention of the teacher should be given to the class exclusively. Every word, every tone, every inflection should be heard, and every error corrected. No sing-song, screeching, drawling, spiritless reading should be tolerated for a moment: the sooner such habits of reading are broken up the easier and more effectually it can be done.

It will be found an excellent drill to have the class, on the slate or blackboard, reproduce the different paragraphs of the lesson in their own language. Let there be a spirit of emulation cultivated; praise those who do well; encourage those who are less successful in the work. Let the class criticise each other's work, as to the words used, the thought expressed, the style, the orthography, the pronunciation, etc. So manage the exercise that none shall become discouraged or uninterested, but all be encouraged and interested, even enthusiastic. These exercises will serve to test the pupil's knowledge of the subject, to fix the attention, to cultivate the memory, and to give facility and accuracy in the use of language as the expression of thought.

If it is urged as an objection to the adoption of some such method as that above indicated, that time cannot be had daily for the work involved, then I reply, take a week, take two weeks, if necessary, to do the work as it should be done; at all events, *do the work*. Bear this in mind: That *one* lesson *thoroughly mastered* is infinitely better than the *whole book* passed over listlessly, unintelligibly, and blunderingly.

Let us, as teachers, be alive to the importance of reading, viewed from whatever stand-point, and "govern ourselves accordingly."

STATE EXAMINATION RHYMES.

BY CHARLES M. DRAKE.

[San Diego County.]

This is the Superintendent of Schools;
Here is the court-room wherein he rules;
These are the teachers who had invitation
To come to this quarterly examination,
In order to show
What they do or don't know;
To quit in despair, or keep on with elation.

Who are these looking so happy and wise,
With their feet pointing upward—the way to the skies?
They are Examiners, gallant and brave,
Ready to cut down or ready to save.
How wise they look
As they glance at a book,
To find out how deep to dig somebody's grave.

See this poor maiden, so sad and forlorn,
Scowling her eye-brows and twisting her form;
Tearful and red-nosed, because of a new
Kind of twist in a problem that she can't see through.
She feels that she's *stuck*
But hasn't the pluck
To make a bold guess as the other folks do.

Here's a youth sitting and chewing his cud,
(Grim as Diogenes under his tub)
Wishing the State Board of Examination
Might have a touch of the mildest—nation
For making such sums
About boards and tons
As none ever heard of since human creation.

That man will get through in case he is not
Caught at his tricks, for he has quite a lot
Of helps on his wrist-bands. He now gives a look
At some rules in his diary. What pains he took
To cheat and to shirk,
And do dishonest work.
He ought to be rapped on the head with that book.

Look at that fellow! His nose is quite red
With the whisky he's drunk. Every tooth in his head
Says tobacco as plainly as that nasty pipe

That's stuck in his pocket. Yet men of that stripe,
Their certificates claim,
Are quite free from blame—
Have "good moral characters" (something like tripe).

Those are some pupils from our city schools,
Filled to the brim with their teacher's wise rules,
And pet ways and notions. Their master said "Come,
"I'll be on the Board, and though you're some-
What young to pass—you,
It may be, will do
Much better than many old teachers have done.

"We'll mark with allowance, we'll treat you with care;
And then though some teachers may sigh with despair,
We'll show them they ought to have been at *our* school
In order to find the right way, and the rule
To measure out lumber,
In boards of right number,
To build a high fence round a common sized mule."

Who is that woman? Oh, she is an old teacher,
Sister, I think, to the Methodist preacher.
In school-room and class-room her life has been spent—
Her hair has been whitened, her form has been bent.
She looks wan and pale;
She's going to fail:
Her age and experience don't change per cent.

What is the moral? I'm sure I don't know;
May be there is none. Well, just let it go.
Morals are scarce in this age: and teachers
Have none to spare any more than the preachers.

EDITORIAL DEPARTMENT.

A Thought on the High-school Question.

The attack on the higher education is not confined to the East; California high schools are getting their share of virulent opposition. And the strangest feature of the contest is, that many men of culture and wealth are among the most bitter opponents of a liberal training.

But we shall not indulge in any speculations on the why or wherefore of this. The fact remains. And in reply, every cultivated teacher can readily produce half a score of valid arguments why the State should support free high schools.

Applicable to the subject is a thought that occurred to us, a few days ago, while we were watching a procession in San Francisco. Eight or nine hundred workingmen, headed by a noted agitator, had just succeeded in taking possession of a public meeting of citizens, who had met to protest against an iniquitous water bill before the Legislature.

These representatives of brute force followed their leader in triumph from the hall, which had been hired for the occasion by the taxpayers of San Francisco, and organized an impromptu procession through the principal streets.

As they filed by, we looked at their faces, and the significant question suggested itself to us—How many of these men ever attended a high school?

The equally emphatic answer was ready—Undoubtedly, not one.

So here, at least, is something high schools do not do.

We may depend upon it, that high schools do not organize mobs, or create riots; they do not lead men to infringe upon the rights of others; in a word, they do not train any

class of citizens to insult American nationality and American principles—even on the soil over which waves the stars and stripes, the very symbol of those principles and of that nationality.

A Word in Regard to Our Contributors

A word in relation to the contributors to the JOURNAL will probably prove interesting to our readers.

In this number Prof. Rattan gives us another of his very interesting and practical talks on Physics. One great merit of these articles is their originality, and the simplicity of the apparatus employed. A competent teacher in any ungraded or grammar school can use these articles for valuable lessons, and the boys can readily make the apparatus. Prof. Rattan is one of the ablest teachers in the State, and a scholar of the highest order in his specialty—the natural sciences. We are proud to number him among our regular contributors.

Of Prof. G. V. Le Vaux, we have already spoken in these pages. He is a scholar, an author, and a teacher, who would be an acquisition to any high school in this State. He has had an extensive experience in England and Canada; and we are pleased to know that his suggestions, through our columns, for school-law amendments have already attracted considerable attention. Any city in need of an active superintendent or an able principal of schools, can find such a one in Prof. Le Vaux.

Prof. Anderson, of the Santa Cruz High School, appears for the first time this month in these pages. If Canada will send us fifty more such men as Prof. Anderson, then we will gladly forgive her for not coming into the Union. We have before this spoken in terms of well-earned praise of the Canada schools, their graduates and their teachers, and every time we come in contact with a gentleman of Prof. Anderson's ability and scholarship, it increases our respect for the Dominion. We hope to hear from him often, and we are certain our readers join us in that hope.

Prof. Minns, our old teacher! yes—and the teacher of hundreds whose eyes rest on these lines! As a teacher, he was always ready to assist the backward, to encourage the diffident, to cheer the despondent—a cyclopædia of knowledge, never hesitating for a pertinent example or an apposite illustration. How many California teachers remember his genial countenance and his kind, encouraging speech! We owe him much, and do not weary of owning the obligation. Every sentence he writes is interesting, and breathes his own warm heart and cultured mind.

F. H. Darling, who contributes an article for the first time this month, is a young teacher, but one who evidently thinks for himself. He has been very successful in his work, and he describes some of his methods in the present article.

Of John Swett, it is not necessary to say much in a California, nay! in an American educational journal. What he is, and what he has done for education, each succeeding year more plainly shows. An Eastern journal justly names him "the Horace Mann of the Pacific Slope." This is not saying too much—for educationally, all California is and all it has, is due to John Swett.

Dr. Beecher's article is one that will attract the attention of all thoughtful teachers. We have said much in the same direction, and we are glad to find such able aid.

Mr. C. M. Drake is one of the ablest teachers in San Diego County. His article in our March number on "Compound Numbers," was very enjoyable and attracted much attention. We trust to hear from him often.

Prof. Ingham again favors our readers with a fine article. Of his ability as a teacher and of his scholarship, this JOURNAL has already spoken. We trust some large city will secure his services; he will prove a great acquisition to any department, and we hope to see him in a position where his superior abilities will have ample scope to benefit the cause of education.

We shall speak of the contributors in our PRACTICAL DEPARTMENT in our next issue. We are especially fortunate in the editors of the several departments.

We solicit correspondence and suggestions from Superintendents and teachers in every county on the coast.

School Legislation.

With the exception of a number of local bills, our legislature has done absolutely nothing in the way of amending the school laws.

Friends of education will not be altogether sorry for this.

So many revolutionary measures were proposed—so many wild projects mooted—that teachers will feel a deep relief, that for two years, at least, our schools will have peace.

If several important measures which should have been considered and passed, were neglected—then, we have the consolation of knowing that a few very pernicious bills had the same fate.

One important measure is, at date of writing, March 26th, still undecided; that is, the Text-book Bill. This bill provides that the matter of the adoption of text-books be recommitted to the State Board of Education. It passed the Assembly by a large majority, and, we trust, will receive the same favorable action from the Senate. We can forgive this legislature much, if they will but release us from the present oppressive text-book monopoly.

A Business Announcement.

Advertising page No. 10 will contain hereafter all information relating to the business department, advertising notes, and general announcements pertaining to the JOURNAL.

We ask our readers always to peruse that page carefully; it will contain important matter.

No business announcements or advertising references will be admitted into the Editorial Department. Therefore, do not fail to read the PUBLISHERS' NOTES, page 10.

An able article by J. M. Eddy, of Humboldt County, was crowded out of this issue of the JOURNAL, as was likewise Mr. Bray's article on Text-Book Uniformity. Both articles are already "in type." We also acknowledge the receipt of an able review of Mrs. Hopkins' "Year's Experiment," in the November *Primary Teacher*, by Miss Agnes Manning. It is needless to say that the review is good—to the point—cutting.

We Must Educate.

Can a form of government based on universal suffrage be permanent?

This is a question which has more than a speculative interest to us, in California, just at present.

Recent events in San Francisco—the metropolis of the State—would point to a negative conclusion.

We see an ignorant and brutal mob invested with the ballot; we hear them claim their constitutional rights; and as if to travesty the constitution, they deny free speech to all who do not agree with them in their diatribes against persons and property.

And their numbers, we fear, make them politically and physically masters of the situation.

The moderation or cowardice of their leaders is undoubtedly all that prevents an outbreak, bloody and disastrous to our system of free government.

What is the remedy? For universal suffrage, compulsory education—for compulsion is necessary.

And we fear this may not suffice. We need more than intellectual education to prevent the saturnalia of crime which is rife all the world over to-day.

Our parents must be educated in their duties to their offspring; they must learn that they are the natural instructors of their own children; that teachers are only their coadjutors; they must realize, fully and forcibly, that they have no more right to send children forth into the world, morally naked, than they have to produce them and let the community provide food and clothing for them. Parents must teach their children morality and religion; teachers will instruct them in arithmetic and grammar. This is the complete and logical scheme of education.

If such a training does not make good men and good citizens, nothing will.

Then we might as well restrict the suffrage by a property qualification, or drift into an absolute monarchy.

We have received, too late for insertion this month, an interesting circular issued by J. C. Gilson, Superintendent of Alameda County, to the teachers of his county. Mr. Gilson enters on the duties of his office with commendable zeal

and energy. A long and highly successful experience as a teacher, combined with thorough culture and close observing powers, render him highly competent to advance the educational interests of Alameda County.

The very practical suggestions of Prof. Anderson in this number of the JOURNAL, will undoubtedly meet with general commendation. In some counties of the State—as, for instance, Nevada, Lake, and Monterey—such associations have already been formed. All that is needed is to extend such organizations to every county, and to connect them all with a regularly-organized central State association.

GENERAL NOTES.

BY PROF. G. W. MINNS.

[Concord, Mass.]

A school inspector, in talking to a primary class, used the word "abridgment," and immediately explained that, as some of them might not know the meaning of the word, he would say that it was a synonym of the word "epitome"!

At an examination of teachers in the City Normal School some words were given out to define, among them *contraband*—which Gen. Butler had made famous—and *internecine*. *Contraband* was defined "to brand twice," and *internecine* "to marry one's niece."

"Average" was recently defined in one of our city schools as "what a hen lays on." The proof of the statement was afforded by the scholar's producing his book, and reading: "A hen lays on an average a hundred eggs a year." The importance of the comma was, perhaps, never more forcibly shown.

In a paper published in New York, among the vessels reported as "below," were "two chips and three barks." The barks were all right, of course, and some wretched punster might insist that the ships were equally so, because in this case they were on the "c." But if they were, then so was the old lady who had put up her house "for sail," and on being asked when she proposed to get "under weigh," replied that she would do so just as soon as somebody would "raise the wind."

A bill has been introduced into the New York legislature to discontinue the taxation of the city for the support of the College of the City of New York, (formerly the Free Academy) on the ground that municipal responsibility for free education ends with the supporting of primary schools. The friends of the college are making strong resistance, and 37,000 names are already signed to a petition against the bill.

Teachers sometimes think that pupils understand their explanations, and are afterwards astonished to find out how entirely they were misconceived. Years ago, when I was connected with the High School, San Francisco, a girl came into my room and stated that the President of the Board of Education had been telling the school that the river Nile has no tributaries for some fifteen hundred miles from its mouth. "Whence, then," she inquired, "does it get the water to overflow its banks every year." I replied that the Nile was supposed to have its source in the interior of Africa, a few degrees south of the equator; that it flowed north, near Abyssinia and through Nubia, and that very heavy rains falling yearly upon the Mountains of the Moon ran into the Nile, and caused the overflow. I used the name "Mountains of the Moon," as it was the name given on her map. The girl left my room, apparently satisfied with the explanation. The next day she told me that she had been thinking over my explanation, and she did not see how rain falling on mountains *in* the moon (looking up as if at the moon in the sky) could get down into the the river Nile. I agreed with her.

The *Interior* speaks of a subscriber who went to heaven and left his subscription unpaid.

Organization of a Kindergarten Society.

On the evening of Thursday, March 21st, about thirty ladies and gentlemen met in Oakland, at the invitation of Miss Emma Marwedel, to discuss the organization of a society to spread the principles of the "New Education."

Nearly one half of those present were teachers in the Oakland schools. In the company were Hon. John E. Benton, Mrs. Benton, J. B. McChesney, Mrs. McChesney, C. B. Bradley, Mrs. Bradley, Mr. and Mrs. W. O. Graves, Mrs. J. C. Kelton, Mr. T. M. Moe, Mrs. Moe, Mr. F. B. Ginn, Mrs. Ginn, Miss. L. E. Temple, Mrs. Dr. C. Buckle, Mrs. L. Griffin, Miss. J. Walbridge, W. H. Friend, Mrs. Friend, H. T. Leglet, Miss S. P. Sherman, and Albert Lyser.

Miss Marwedel called on Mr. McChesney to state the object of the gathering.

Mr. McChesney briefly stated the object to be to form an association of earnest teachers, and friends of education, for the purpose of inculcating the Frobelian theory of education. He gave a sketch of the labors of Miss Marwedel and of her devotion to the cause of a true education.

Mr. Benton made a few earnest and enthusiastic remarks on Kindergartening, and on Miss Marwedel's success as a Kindergartener. He gave a graphic account of a Kindergarten which Miss Marwedel now has in operation in Oakland, and soon created as much enthusiasm in his audience as he himself displayed.

On motion, the meeting organized by the election of Mr. McChesney as President, and Albert Lyser, Secretary.

A general discussion ensued relative to the organization of a society, kindergartening, and the New Education. It was soon evident that all present were thoroughly in accord on the question of early education. All sympathized fully with the kindergarten movement, and were disposed to foster it—to disseminate the principles of Frederick Frobel over all this Western slope.

On motion, it was resolved to appoint a committee of three, to make such provision as might be necessary for permanent organization.

It was also resolved to meet twice a month, on Thursday evenings. The first regular meeting was decided for Thursday, March 28th, when Miss Marwedel consented to read a preliminary Essay on Kindergartening.

The committee were then appointed, consisting of Miss Marwedel, Mrs. Ginn, Mr. Benton, and Mr. Lyser.

The meeting then adjourned.

Thus was inaugurated the first association in the Far West, devoted to promulgating the principles of the New and True Education—the education of the Mind, and Soul, and Body.

May this germ, planted amid the lovely oaks of the "Athens of the Pacific," grow and spread until every part of our land feels the benign influence of a pure intellectual and physical growth.

CORRESPONDENCE, NOTES, AND QUERIES.

A Criticism Noticed.

The following sentences appear in the February number of the JOURNAL, in answer to questions asked in the January Number: "We are cognizant of sound just as we are cognizant of wind. Neither is matter." "When ice melts, heat is absorbed." "B" criticises in the March number, saying: "Sound is a sensation, not matter. Wind is air in motion. Does he mean to say that air is not matter?" He also questions the the correctness of the expression, "Heat is absorbed."

Probably I should have written the first sentence thus: "We are cognizant of sound just as we are cognizant of *motion* in the air when it fans our faces." Text book writers carefully explain to us that sound is a *sensation*

depending upon ears—the longer the ears the more sound? Then they gravely go on talking of the rapidity of sound; how it is reflected, refracted, etc. A sensation which can travel many miles must be a sort of "disembodied" sensation.

Tyndall and other writers upon heat frequently use the expression, "*Heat is absorbed*," meaning that it becomes "*latent heat*," just as we may say that sound is absorbed by the telephone and reappears at a distant place; meaning that the motion sound is changed to the motion electricity, which in turn leaves a distant telephone as sound. Is latent heat more like the heat which cooks our steaks than either is like electricity, or affinity, or even sound? Will "B" or some one else "rise to explain," and tell us also, whether motion is matter; whether inertia is a force or a property; whether the "waves of ocean" are water in motion, or a motion of water; whether, in short, we shall give new meanings to old words, or make new words.

V. R.

In or Into.

TO THE EDITOR: The use of *in* for *into* is becoming very common of late. Seldom do I take up a paper to read an article of any length that I do not meet with examples. The journalists and correspondents of papers must either regard it as authorized by usage, or they intend to establish the usage. But I cannot make its sound seem correct; it is a discord in my ears, and, besides, in most cases the two words convey an entirely different meaning. Yet they are daily used indiscriminately. I give the few examples at hand to show the usage by those who claim to be good writers:

He fell *in* a well.—*Sonora Union Democrat.*

A railroad extends from Cape Town some distance *in* the interior.—*Alta.*

He quickly got back *in* the house again.—*Chronicle.*

Why did he throw it *in* the hedge?—*Writer in* JOURNAL.

I pour water *in* the glass, etc.—*Writer in* JOURNAL.

C.

What is the origin of "Bonanza"?

Bonanza is a Spanish word and means, literally, fair weather—a fair day. Then it came to be used to express any idea conveying *fair* indications. So it was applied by miners in Mexico to veins of ore that promised large yields; and now in California it is limited chiefly to this application. C.

ALAMEDA, March 20th, 1878.

EDITOR JOURNAL: Will you please describe briefly and distinctly how photographs are taken?

TEACHER.

Collodion, which is composed of gun cotton, alcohol and ether, and colored with iodine and bromide of cadmium, is first "flowed over" a glass plate for a negative. This plate is then dipped into a bath of nitrate of silver (40 grains strong) and water. This makes what is termed the *collodion film*—sensitive to light. The plate, after remaining in this bath for two or three minutes, is sufficiently sensitive to place in the camera for the picture. To make a picture, the camera must be focused, so as bring the image of the object to be taken upon a ground glass. When the image is sharp and distinct upon the ground glass, the proper focus is obtained. The ground glass is then removed, and a holder containing the sensitive plate is put in its place; a slide is drawn, exposing the plate to the rays of light, reflecting the object to be taken through the camera tube, and after an exposure of from *fifteen seconds to one minute*, according to the light, the slide is put in its place, and the plate in the holder is taken to a dark room. The negative is then developed by pouring upon it a solution of sulphate of iron and water. Then it is fixed with a solution of hypo-sulphate of soda. After the negative is dried, it is then varnished with a transparent varnish, being then ready for printing photographs. H.

EDITOR JOURNAL—Dear Sir: Will you please give your idea of the law known as "Murphy's Amendment to School Laws." In your March number is a quotation from the *San Jose Times;* are we to understand from that that you favor the bill? The *Times* says: "We see no reason why Normal School graduates should enjoy any more advantages than graduates of equally meritorious institutions." Such argument, it appears to me, is as unreasonable as the bill is unjust and damaging. The Normal School is a State institution for the education of teachers. Teachers are employes of the State, and if graduates of private sectarian schools have a right to teach in our public schools what need of a Normal School? Again, it has been the boast of our public school system that everything of a sectarian character has been excluded. If the "Murphy Amendment becomes a law, what is to prevent the public schools from becoming denominational in character, according to the popular

feeling in the district. If there are any arguments in its favor I, for one, would like to hear them. CALAVERAS TEACHER.

Copperopolis, March 14th, 1878.

We agree fully with our correspondent in regard to this "Murphy Amendment," which, we are glad to say, has failed to become a law. The arguments made against it in the above communication are sound.

What is the origin of "Bohemian"?

The word was originally applied by the inhabitants of Western Europe to those nomadic tribes variously known as "gipsies," "zingari," etc., under the impression that they came from Bohemia. Its first appearance in this sense seems to have been in the fifteenth century, under the Old French form of "boesme." (*Vide* Larousse's "Grande Dictionnaire.") As time passed on, it lost its strict signification, and was applied to any body of men of irregular habits. In "Scènes de la Vie de Bohème," a kind of apotheosis of Bohemianism, Henri Murger, the author, thus defines the term:

"A Bohemian is one devoted to the arts, and who lives by them. Too often he has nothing but youth and hope, yet hope makes of the pauper a millionaire. Bohemia has on either side a gulf—the Gulf of Misery, the Gulf of Doubt. It is the preface to glory, or to despair. Homer was a Bohemian. By day he traversed the Ionian plains, eating the bread of charity, and at night he sung by hospitable firesides the loves of Helen and the fall of Troy. In the Middle Ages, too, we have Bohemians—the troubadours and trouvères, devotees of the 'joyouse science,' those melodious vagabonds who wandered over the plains of Touraine singing of beauty and valor."

He goes on to include in the list of famed Bohemians Michael Angelo, Raphael, Benvenuto Cellini, Titian, Paul Veronese, Shakespeare, and Molière. At present, the term is applied principally to artists, journalists, actors, etc. The existence of the modern Bohemian, however, is by no means so precarious as was that of his predecessor of former times. Who would not be a Bohemian with Homer and Shakespeare! H.

QUERY.—What is a miner's inch of water? A miner's inch of water is what flows through an aperture of one inch with a six-inch pressure. The water is let into a box from the ditch.

Educational Intelligence
FROM
STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

A new system of supplying substitutes for temporary vacancies has been adopted by the present Board. We have examined the system, and are satisfied that it will greatly increase the efficiency of the schools. There are about fifteen substitutes needed daily.

Under the old system, all who desired to substitute in the department were required to report daily to the Secretary of the Board, and were sent to schools where their services were required.

The result was that too often inexperienced and utterly incompetent teachers were sent to take charge of classes they could not manage. In many instances it would probably have been much better to dismiss a class than to keep it in session with a substitute who did no teaching, and who could scarcely keep order.

Under the new system the Board have elected twenty regular substitute teachers at a salary, whether work is done or not. In the latter case the sum is nominal, but enough to retain the services of good teachers. The schedule of pay adopted in case of actual work, is very liberal.

On the whole, the expense to the Department is only a few dollars per day more than by the old system, and we already see a decided improvement in substitute work.

We do not know whether or no this system is already in vogue in other cities; if not, we think it might, with advantage, be adopted. There will always be more or less absence among teachers, and pupils should not be made to suffer unnecessarily thereby. Under the old system, a day's absence of the teacher was a total loss of one day to the children; now, an experienced and amply-recompensed substitute can do nearly as well in a class as the regular incumbent.

Another strong argument in favor of the new system is that it destroys the old "patronage system." Of old, there were so many applicants for even a day's substituting, that it was considered the correct thing to give each applicant "a chance" in rotation. This, to some extent, satisfied or stilled the strong political pressure on directors, even if it proved prejudicial to the best interests of the department.

We have written at considerable length on this

subject; first, because it is being thoroughly discussed in educational circles in this city; second, because we believe the new system worthy of imitation elsewhere.

Since the "carpenter shop" of the department has been under the charge of Director Phillips, it has been economically conducted. Mr. Kincaid, the head carpenter, an efficient man, has ably seconded all Capt. Phillips' efforts in the direction of economy and reform. But we desire to call attention to two directions by which thousands of dollars still "leak out" annually. One is in the matter of supplying articles for the department which are not specified in contracts. These are generally charged for at the highest, not the lowest, market price. Another leak, and the greater, is caused by principals, who, when they have a few desks to put down, a few nails to be driven, or an hour's work of any description to be done, send to the carpenter shop for men to do it. This is wrong. The janitor of a school building should be required to do all work except such as will require skilled labor, or several days to do. We believe the department loses five or six thousand dollars per year in this way.

We are glad our efforts to modify our course of study so as to make the same more practical, are, at last, meeting with some success. At the meeting of the Board of Education, held March 19th, Director Leggett offered a resolution to establish an ungraded class, with a modified course of study, *i. e.*, with only the main subjects of the grammar school course. We believe it is designed in time to add to this course of study such branches as have a bearing on industrial pursuits; also to establish more classes as pupils present themselves. We consider the resolution of Director Leggett well-timed, and believe it will prove the initial point for the establishment of an elementary technical school.

Two new houses for primary schools were completed in March. Of one, the Lombard Street School, Miss A. B. Chalmers was elected Principal. The principalship of the other has not yet been filled.

The schools had the usual spring vacation from March 15th to 25th.

A bill which has just passed the Legislature provides that the Board can spend only one-twelfth the annual appropriation each month.

San Francisco gets $380,000 from the State School Fund this year. It is expected that this will leave a surplus of about $40,000, which is to be put into one or two good primary school buildings.

The average daily attendance of pupils at the public schools for the year 1877 was nearly 27,000.

It is estimated that the public schools of this city will require $979,875 for the year 1878–1879.

W. C. Crooks, Miss Carrie Putnam, Miss Agnes McNamara, Miss Anna M. F. Smith, Mrs. Mary Mathews, Miss Mary E. Crowley, were elected as teachers in the department in March.

There are, at present, two vacancies in the San Francisco schools. There are, however, four hundred applicants.

CONTRA COSTA COUNTY.

Superintendent E. L. Wemple has appointed Messrs. A. A. Bailey, T. H. McCarthy, and Miss M. T. Dickinson as his County Board of Examiners.

First grade certificates were granted to Miss Elva R. Elder and John Manzer, and a third grade to Miss Placie Howard.

There are 3,326 census children in this county.

The Martinez Grammar School, Miss M. T. Dickinson, Principal, and Misses Wittenmeyer and Swain, assistants, opened for the spring and summer session on March 5th. Miss Dickinson has had charge of this school for two or three years, and proved an able and successful teacher.

SONOMA COUNTY.

G. N. Sanborn, who taught the Spring Hill School last year, has been elected to the Freestone School. Mr. Sanborn is one of the most experienced and best teachers in this county.

Mr. D. C. Clark has been elected to fill the vacancy in the Santa Rosa High School, caused by the resignation of Mr. Ennis, who has accepted the principalship of the Sonoma Grammar School.

There were forty-eight applicants for certificates before the County Board of Examination. Seventeen were successful.

There are 101 school districts in this county, and the number is constantly increasing.

Superintendent E. W. Davis enters upon the duties of his office with a vim and enthusiasm characteristic of a man thoroughly embued with love for the profession of teaching. Mr. Davis is a University of California man, cultivated, and a successful teacher. Even his political opponents speak in the highest terms of him. We predict for him a useful and brilliant career.

At Sebastopol, in this county, Mr. G. W Frick and Miss Adams are teaching a highly successful school.

The County Board of Examination consists of E. W. Davis, County Superintendent, M. Dozier, C. S. Smith, J. M. Kirkpatrick, and E. T. Crane.

TRINITY COUNTY.

The Weaverville School, under the efficient management of R. O. Seward, Principal, Mrs. E. B. Ames, and Miss Mary O'Neil, assistants, opened for the summer term, with a large attendance, on Monday, March 11th.

Miss M. N. Wadleigh, the efficient and popular Superintendent of this county, entered on her second term on March 1st. She will, in addition to her duties as Superintendent, teach the Hay Fork School for the ensuing year.

Miss L. Chapman, teacher of the Junction City School, was the only applicant for a certificate in this county at the quarterly examination. She was successful.

TEHAMA COUNTY.

Thanks to the wise and efficient administration of Supt. J. E. Campbell, who entered on his second term on March 1st, the schools of this county are in excellent condition. Mr. Campbell has evidently picked many of his teachers, as there is no county in California which, in this regard, is superior to Tehama.

The Red Bluff schools, under the principalship of Professor McCoy, are doing very excellent and satisfactory work.

We understand that considerable interest in education has been aroused in this community in those not immediately connected with schoolroom work. This is a hopeful sign of progress.

ALAMEDA COUNTY.

A very exciting political contest, in which the new "Workingman's Party" played a prominent part, resulted in the re-election of Fred. M. Campbell as City Superintendent of Oakland.

Mr. Campbell, the nominee of the Republican party, was the only man, but one, elected on his ticket, and he obtained the largest majority of any of the candidates.

This was a well-deserved tribute to the pre-eminent merits of Mr. Campbell. Oakland, as regards population, is the second city on this coast. As an educational center, and for the merit of its public schools, we are certain it has no superior in the United States. This excellent condition is mainly owing to the honest work and rare ability with which Mr. Campbell has for eight years past, labored in the cause of educational progress.

Prof. C. E. Merwin, lately a prominent teacher in some Western State, (Michigan, we believe) has assumed charge of the Pleasanton School, made vacant by the induction of Mr. Gilson as Superintendent. His assistant is Miss Louise MacKenzie.

We paid a very enjoyable visit to the Oakland High School, J. B. McChesney, Principal, during the March vacation of the San Francisco schools.

We listened to some excellent reading exercises, which showed thorough and original methods of training. Mrs. Ginn is the teacher of reading in this school.

Mr. McChesney is very fortunate in his assistants, as our readers may see in another part of this month's JOURNAL. C. B. Bradley, a graduate of Oberlin, is his Vice-Principal; Miss Temple is the teacher of Mathematics; Miss Irene Hardy of Botany and Natural History, and Miss Walbridge of the Belles-Lettres.

The school is a credit to Mr. McChesney, and will, we believe, compare favorably with any similar institution in the Union.

The Oakland system of classification and examination provides for semi-annual examinations and promotions. This renders the graded system more elastic; and does not compel the teacher to keep back the bright and active intellect, in order to urge on the indolent or dull child.

SISKIYOU COUNTY.

EDITOR JOURNAL: In compliance with your request, I send you a few items from the Arctic region of California. As far as our knowledge extends, educational matters are flourishing. The public schools of this place are full to overflowing, and constantly increasing.

We have two private schools in Yreka, one of which is conducted by County Superintendent Duenkel, and the other is known as the Sisters' Academy. The pupils of the latter are mostly boarders, whose parents live in the country. Our public school house is an excellent brick building, and is furnished with furniture of the most modern style, and completely supplied with apparatus of *all* kinds.

We met last evening and organized a literary society, and as the time of organizing was on the birthday of the Father of our country, it was unanimously agreed to call it the "Washington Literary Society," organized by the teachers and pupils of Yreka public school, for the purpose of self-improvement and mutual benefit.

The school-house in Shasta Valley district was burned down on the 21st inst. It took fire from a defective flue, and before it was discovered, it had obtained such headway that the teacher and pupils were unable to check it. All the furniture, including doors and windows, were saved.

As to methods of teaching and school management, we would say that our constant aim is, in school management, to make each and every pupil feel happy and contented. We believe the best way to do that is to act *firmly* and *kindly* with them, and regard *their* feelings as you would those of grown people, and be just as careful not to wound their feelings as you would those of your best friend. We believe that many teachers fail in not having a proper regard for the sympathy and feelings of his or her pupils. We do not wish to be understood that we are not to punish when necessary. While we are not an advocate of the rod, to any great extent, we do believe that a judicious use of it is a very effective means. We have our rooms all nicely decorated with pictures and other ornaments, such as the pupils have been able to collect, and such as the pupils of every district will collect by a little energy upon the part of the teacher.

We have Webster's Unabridged and the American Cyclopædia placed on a table in the rear of the school room, and, as we saw suggested in the JOURNAL of a late issue, we allow pupils to go to them at all times without permission—not more than two at once. We believe they refer to them more now in one week than they did in three months before we allowed them the privilege. As yet we have had no disturbance from the practice. It is understood that any pupil that makes noise enough to be heard while going to and from the book will be deprived of the privilege. We think it a capital plan, and advise others to try it. Pupils of the same class or division occupy the same tier of desks. Each pupil has a number in school, and at each desk is seated an odd and an even number, which we find very convenient in classes that are so large, that all cannot be called to the board at once, as then we can call the odd or the even number out and leave the others at their seats, one at a desk to be questioned, or while those at the board are working, those at their desks may be doing different examples on slates, or criticising, or asking questions about the work on the board, and last but not least, it prevents copying to some extent. When a pupil wishes to speak to another, he or she indicates the same by quietly raising the hand with but one finger extended; when they wish to speak to me, two fingers are extended; to leave the room three fingers are extended, etc.

This article is now long enough without anything on methods of teaching. I will close, and if it is your desire, I may some time in the future give something on that subject.

Yreka, Cal., 1878. J. E. PUTMAN.

HUMBOLDT COUNTY.

EDITOR JOURNAL: At the last Teacher's Examination, commencing March 6th, the following were successful candidates: G. A. Kellogg, First Grade County; Miss Ida C. Ogden, Miss Emma Williams, and James Fike, Second Grade County.

The amount of money apportioned, March 5th, from State Fund, including Library Fund, $23,379,84, and from County Fund, $5,521.25.

At a meeting of the Board of Supervisors, in February, the following districts were organized: Port Kenyon, Shelter Cove, Maple Creek, and Trinity.

On account of heavy and continuous rains, schools will not open as early as usual.

Hydesville, March 16, 1878. J. B. C.

MENDOCINO COUNTY.

At the late meeting of the Board of Examination there were seventeen applicants. Six were successful—five of whom received second grade certificates, and one first.

The Ukiah Public School resumed on the 18th ult. with the same corps of teachers, and about 300 pupils.

E. B. Gamble, one of our first teachers, has chosen another field for his labors, in which he can do much good for the one he has left. He is now editor of the *Democratic Weekly Dispatch* of Ukiah. He shows his lingering after his first love by devoting a column of his paper entirely to education.

Most of the schools are waiting for fine weather to commence work.

E. C. Kilpatrick, late of San Leandro, is in the county, and will teach here during the coming summer.

BUTTE COUNTY.

W. J. McMillan, of Thompson Flat, has been obliged, through sickness, to give up his school. Fears are entertained by his friends that it is a serious attack of consumption.

Miss Eva Burt, who recently closed a term of school at Morris Ravine, has taken charge of the Inskip School for the summer.

Miss Nellie Givens will close the Central House school in a short time, and take charge of the Mooretown school. This makes the fourth term Miss Givens has taught the same school. No higher praise can be given to a teacher.

Miss Maggie E. Shekels, who has taught the school of Honcut District, in Yuba County, during the past six months, has engaged the school in Red Clover Valley, Plumas County, for the summer.

Miss Kate Leggett, lately of the State Normal School, is teaching at Rio Lecom, Butte County.

From R. DeLancie, Esq., who has lately left the profession, having been appointed Under Sheriff of Butte, we learned that Mr. and Mrs. Norman, of Cherokee Flat, contemplate going to the Atlantic States during the summer, Mr. Norman holds a Life Diploma, and Mrs. N. an Educational Diploma. Both are very successful teachers, and will be greatly missed in Butte.

Prof. E. M. Hoffman, the well-known teacher of penmanship, lately opened a school in Oroville. He has one hundred and twenty pupils, and thirty more would attend if the professor could take them.

From Rev. Jesse Wood, County Superintendent, we learn that the Cherokee schools are in a flourishing condition. Four teachers are employed.

At Wyandotte, E. J. Clapp has the confidence and good will of the school patrons. The citizens will shortly vote upon a tax for the purpose of building a new school-house.

Miss Pollie Woodward has gone to Yuba County, to take charge of a school during a few weeks, until Prof. Smullin, of Bangor, finishes his term, to take charge of the Yuba school.

Three new districts will probably be created at the next meeting of the Board of Supervisors.

B.

NEVADA COUNTY.

The usual quarterly meeting of the County Teachers' Association was held on the 23rd inst., in the High School, Grass Valley, Prof. Carmichael presiding.

The question "Whether graduates of Eastern Normal schools and Universities coming to this State should be granted teachers certificates without examination?" gave rise to a very animated discussion, during which the present practice was unanimously condemned. Mr. Carr and Prof. Crowell brought forward a motion on the subject, which was followed by a supplementary amendment by Mr. Herrod, requiring graduates of Normal schools, whether of California or elsewhere, to undergo the same examination (and at the same time) as other candidates. After a warm discussion (in which Prof. Carmichael, Prof. Crowell, Dr. Webster, and almost every member present took part) the motion and amendments were withdrawn, and the following, proposed by Mr. Le Vaux, seconded by Mr. Burrows, was carried, viz:

Resolved, That in the opinion of this Association all applicants for teachers' certificates should be required to pass the examination prescribed by the State Board of Examination; and further

Resolved, That to obtain a certificate of the first grade every candidate should be a graduate of our Normal School, or of our State University, or else have had *three years'* experience as a practical teacher in equal or lower grades.

Mr. Herrod gave an interesting lesson, exhibiting his method of teaching certain parts of arithmetic.

Mr. Burrows delivered a very eloquent address on education, during which he dwelt emphatically on the necessity of extensive culture, practical experience, and either University or Normal School training. Messrs. Carr, Herrod and Riley supported his remarks, although not concurring with his views in every particular.

Messrs. Crowell and Le Vaux pointed out the advisability of supporting some educational periodical as a medium of professional communication, and recommended the PACIFIC SCHOOL AND HOME JOURNAL to the attention of the Association as a magazine well worthy of patronage. After which, it was unanimously

Resolved, That we, the teachers of Nevada County, do hereby adopt the "SCHOOL AND HOME JOURNAL as a medium of professional communication, and do cordially recommend it to our brethren as a publication well worthy of perusal and support; and further

Resolved, That a report of our regular meetings be duly forwarded to Mr. Lyser for insertion in same.

The Association then adjourned to meet at North San Juan on the last Saturday in April.—*Nevada Gazette.*

California.

The annual apportionment of the State Fund for 1877–78, amounting to $1,312,439.52, has been made by State Superintendent Carr. There are 200,067 census children in the State, and the amount per child is $6.56. The school census would indicate the population of California to be nearly 1,100,000.

Examination Questions for Teachers.

GENERAL QUESTIONS.

1. State your name, age, and birthplace. 2 Where educated. 3. Your experience in teaching. 4. What certificates or diplomas you hold. 5. Are you an applicant for a *State* Certificate?

N. B.—Nos. 12 and 13, in the order of studies, composition and penmanship, are to be determined from the other papers submitted.

ORTHOGRAPHY.

(100 *credits*.)

1. Spell correctly the following words (25 credits): Echoes, sphere, molecule, dowager, victuals, budge, eyrie, irony, vehicle, vaunt, furlough, fiord, achromatic, exemplar, zoology, spectroscope, criterion, burlesque, February, chloroform, lease, peony, Sinaloa, threshold, Willamette. 2. Write the following sentence, (15 credits): Man's *genius* is *developed* by *success*, as, *illustrated* in *machinery*, we find his *economical appliances realize* this *apparently paradoxical phenomenon*, viz.: *creating cheap commodities* from dear raw *materials*. 3. Give ten classes of words that should begin with capitals (20 credits). 4. Give five examples of words spelled alike but pronounced differently; and five spelled differently which have the same pronunciation (2 credits each). 5, Explain what is meant by these abbreviations: LL.D., C. O. D., Prox., Supt., A. D., Dr., Ult., Rom. Cath., Vs., Cwt. (10 credits). 6. Write five words, and place over them the signs which represent their elementary vowel sounds (4 credits each).

GRAMMAR.

(100 *credits*.)

1. Why do nouns and pronouns change their forms? 2. Write first, a simple, second, a compound, and third, a complex sentence. 3. Define and give an example of an idiom. 4. Name and illustrate four different ways in which the nominative case may be used. 5. What parts of speech may be used as subjects? Give examples. 6. He returned a *friend*, who came a *foe*. Parse *foe*. 7. Write sentences in which the relatives *who*, *which*, *what*, and *that* are correctly used. 8. Correct, *I expected to have found him gone.* 9. Show, in written examples, the difference between perfect and pluperfect tenses. 10. Write the principal parts of the following verbs: strike, choose, retrieve.

ARITHMETIC.

(100 *credits*.)

1. What three numbers between thirty and one hundred and forty have twelve for their greatest common divisor, and 2772 for their least common multiple? 2. What is the approximate sum of 1 decimal unit of the first order, ¼ of a unit of the second order, ⅛ of a unit of the third order, ⅛ of a unit of the fourth order, 1-5 of a unit of the fifth order, 1-6 of a unit of the sixth order? 3. What is the continued product of the following numbers:

$$\frac{27}{37\frac{4}{5}}, \quad 87\frac{2}{9}, \quad \frac{7}{98\frac{1}{8}}, \quad \frac{8}{2\frac{1}{8}}, \quad \frac{81\frac{5}{11}}{128}.$$

4. (*a*) Deduce a rule for extracting the square root of numbers. (*b*) Prove that $\frac{3}{7} \div \frac{2}{5} = \frac{15}{14}$.

5. A and B own a farm together; A owns 7-12 of it, and B the remainder, and the difference between their shares is 15 A. 1 R. 28⅛ P. How much is B's share? 6. When gold is at a premium of 33 per cent, what will be received in gold from a sale of $5000 U. S. 5—20's at 72, allowing commission and interest at 1¼ per cent.? 7. The following note was discounted at 1¼ per cent. a month, July 5th, 1877, how long had it to run, and what were the proceeds:

$9000. SACRAMENTO, June 19, 1877.

Two months after date, for value received, I promise to pay to the order of Joseph Strong, nine thousand dollars, at the Capital Bank.

8. How many feet, board measure, are there in three joists, which are 15 feet long, 5 inches wide, and three inches thick? 9. In 2 miles, 6 furlongs, 39 rods, and 5 yards, how many kilometres? 10. I bought a piece of land 16 ch. long and 15 ch. wide, at $100 an acre, and dividing it into lots of 6 rods by 5 rods, sold them at $50 each. What was my gain?

GEOGRAPHY.

(50 *credits*.)

1. On which side of the western continent does vegetation extend furthest north? Give reason. 2. What European countries are called the five great powers? 3. Write a brief exercise in local geography, or a study of ——— town, village, or district. 4. What maritime advantages would Russia gain by the conquest of Turkey? 5. Compare the leading exports of California with those of any European country.

Questions for Examination of First Grade Classes.

[Prepared by D. C. STONE, Deputy Superintendent of Public Schools, San Francisco.]

It is to be understood, that in some few instances, the accompanying questions and notes extend beyond what is laid down in the Manual of Instruction for this grade. It will require but little time, however, for teachers to observe these particulars, and instruct their pupils accordingly.

WORD ANALYSIS.

1. (*a*) What is a root-word? a simple word? a derivative word? a compound word? a suffix? a prefix? a primitive word? (*b*) Name the three principal languages from which the English tongue is derived. (Saxon, Latin, Greek.) 2. Name ten Latin prefixes, with their meaning, and an illustration of the use of each. Model: Ante, before. Example: antedate, to date beforehand. 3. Mention ten Latin words adopted in English without change. 4. Define the following suffixes: ous, ion, sive, ify, ize, with an illustration of the use of each. 5. Combine able or ible with the following: Move divide, erase, blame, force, ford, deduce, receive, perceive, admit. 6. Name five suffixes, meaning *one who follows a certain profession, or is skilled in something.* Illustrate. 7. Give ten *Americanisms*. 8. Give ten of the Latin roots most frequently met with in English words. 9. Name ten English words of Greek origin. 10. Define the following Greek prefixes: amphi, (or ambi) auto, ard, deca, hydro, mono, poly, hexa, pan, peri.

ARITHMETIC.

First Grade.

1. (*a*) $\dfrac{4\frac{2}{3}}{3\frac{8}{9}} + \dfrac{\frac{1}{2}\times\frac{6}{7}}{1\frac{11}{14}} = ?$

(*b*) Find the L. C. M. of 2,890, 340, 85, 100, 51.

2. (*a*) Define ratio, proportion, a decimal fraction, a simple number, a compound number.

(*b*) How many acres in a circular field of which the radius is 75 rods?

3. A merchant buys one lot of goods for $1,724, another for $525.50, and another for $623.75. On the first lot he gets 2 per cent., and on the second and third 3 per cent. discount for cash; what amount will pay for the whole?

Note.—The method of working "true discount" given in the text-books is not used at all among business men in this city. In Europe 2 per cent. discount on a sum of money would mean 2-102 of the amount; here it means 2-100 of it, which is, of course, a little larger discount than the first.

4. B wishes to send $624.50 to Liverpool. Exchange being at the rate of 49⅛ pence to the dollar, what will be the face of the draft in English money?

Note.—It will readily be seen that examples of this kind embrace none of the technicalities of "exchange," excepting the word *draft*, which is easily explained. The number of pence to the dollar varies from day to day, according to various circumstances. The example is readily worked by analysis.

5. Exchange being at the rate of 48¾ pence to the dollar, how much must I pay for a draft on London for £125. 13s. 4d.?

6. Exchange being at the rate of 18¾ cents to the franc, what will be the face of a draft by means of which I can send $175 to Paris? (Answer in francs and hundredths of a franc.)

7. M borrowed $750 of N on May 7th, 1876, at 1¼ per cent. per month. He made payment as follows: November 12th, 1876, $200; January 1st, 1877, $150; June 15th, 1877, $100. What is due on the note April 24th, 1878?

Note.—The simple formula of all bookkeepers in regard to partial payments is, "*Interest* must always be paid *first*." The "United States rule" proceeds on this principle, and therefore is always a safe rule to work by.

8. If I buy 200 shares of mining stock at $42.50, paying ⅛ of 1 per cent. commission, and, after keeping them two months, sell them at $54, paying commission at the same rate, what per cent. profit do I make?

9. (*a*) What will it cost to fence a rectangular field 152 rods long and 75 rods wide, at $1.25 per rod?

(*b*.) What is the length of the diagonal of the field?

(*c*) What is the land worth at $40 per acre?

10. (*a*) How many feet, board measure, in the following bill of lumber:

24 pieces scantling 2 in. by 3 in., 16 feet long.
36 " " 2 " by 4 " 12 " "
20 " " 4 " by 6 " 20 " "
12 redwood boards, 10 " by 1 " 14 " "
8 " " 12 " by 1 " 16 " "

Note.—Explain that scantling 2x3 contains the

same number of feet, board measure, to each foot of length as a board six inches wide and one inch thick. Each scantling, then, in the first lot contains 8 square feet; each of the second lot, 8 square feet; and eaeh one of the third lot, 40 square feet. If classes are pressed for time omit this example.

(*b*) What is the cost of lumber in this bill, at $20 a thousand?

(*c*) How many bushels in a bin 6 feet high, and measuring 8 feet by 5 feet on the bottom?

Third Grade.

1. (*a*) Reduce $18\frac{3}{8}$ to a decimal form.

(*b*) Reduce to decimals—

$\frac{7}{8}$, $\frac{4}{5}$, $\frac{11}{13}$, $\frac{4}{7}$, $\frac{13}{16}$.

(*c*) Reduce to the L. C. Denom.—

$\frac{5}{8}$, $\frac{2}{3}$, $\frac{11}{12}$, $\frac{5}{7}$, $\frac{3}{4}$, $\frac{11}{14}$, $\frac{20}{21}$.

(*d*) Reduce to their lowest terms—

$\frac{85}{289}$, $\frac{72}{324}$, $\frac{90}{211}$, $\frac{87}{290}$, $\frac{12}{672}$.

2. Reduce £74 16s. 10d. to pence, and prove by reduction ascending.

3. 72.461 + 32.0094 + 1.00072 + 3.461 — 29.0804—2.862=?

Multiply the result by 4.701, and divide the product by .021.

4. How many cubic feet in a cord of wood?
How many square feet in a square rod?
How many ounces in an avoirdupoise pound?
How many ounces in a troy pound?
How many degrees in a half circle?

5. What is the interest of $425, at 9 per cent. per annum, for 1 year, 7 months, 24 days?

6. (*a*) Find the time from May 2d, 1877, to June 1st, 1878.
From Jan. 27th, 1878, to Nov. 16th, 1878.
From June 1st, 1878, to Dec. 9th, 1878.

(*b*) Interest of $75 from Jan. 6th to May 28th, 1878, at 10 per cent. per year.

7. $\left(\frac{11}{17}\text{ of }289\right)+\left(\frac{5}{7}\text{ of }308\right)-\left(\frac{2}{3}\text{ of }123\right)-\left(\frac{13}{19}\text{ of }361\right)=?$

8. Find the amount of the following bill:

72 doz. brooms, at $8.50 per doz.
40 " buckets, at 2.25 "
613 lbs. coffee, at .19 per lb.
324 " sugar, at .12 "
7 cases d. fruit, at $4.63 per case.

9. How many cubic feet in a box 5 feet long $2\frac{1}{2}$ feet wide, and 2 feet high?

10. (*a*) Reduce 2 miles, 240 rods, 24 inches, to inches.

(*b*) $\frac{4}{5}+\frac{2}{3}+\frac{5}{14}-\frac{1}{2}-\frac{3}{10}-\frac{1}{7}=?$

ARITHMETIC.

Fifth Grade.

1. $\frac{4}{5}$ of 45=? $\frac{9}{10}$ of 60=? $\frac{5}{7}$ of 84=? $\frac{9}{8}$ of 81=? $\frac{2}{3}$ of 36=?

NOTE.—Drill thoroughly on examples of this type.

2. $\left(\frac{7}{8}\text{of }64\right)-\left(\frac{3}{4}\text{ of }40\right)=?$

$\left(\frac{11}{12}\text{ of }60\right)+\left(\frac{5}{11}\text{ of }66\right)=?$

$\left(\frac{7}{8}\text{of }56\right)+\left(\frac{1}{9}\text{ of }54\right)=?$

$\left(\frac{3}{7}\text{ of }42\right)\div\left(\frac{1}{2}\text{ of }6\right)=?$

3. (*a*) 42.361÷23.

(*b*) 821.7340÷51.

4. Bought—

48 lbs. honey, at 16 cents.
521 " barley, at 2 "
140 " wheat, at 3 "
72 " sugar, at 13 "
3 doz. brooms, at $2.25 per doz.
4 " tubs, at 3.50 "

Find the amount—

5. $\frac{7}{8}\times3=?$ $\frac{5}{9}\times7=?$ $\frac{3}{11}\times9=?$ $\frac{4}{10}\times6=?$ $\frac{7}{8}\times3=?$

6. Reduce to improper fractions—

$7\frac{5}{8}$, $11\frac{2}{3}$, $4\frac{7}{9}$, $3\frac{4}{5}$, $12\frac{1}{2}$, $6\frac{2}{3}$, $3\frac{1}{6}$, $4\frac{8}{9}$, $10\frac{1}{3}$, $2\frac{11}{12}$.

7. 2762+8932+4862+19401 — 299—782—304—706=?

Multiply the result by 72, and divide the product by 18.

8. Cash received on Monday, March 25th: $42.40, $73.60, $80, $121.70, $246.40. Paid out: $10, $1.25, $426.50, $72, $1.45, $3.27, $1.50. How much cash on hand at night?

9. Change to mixed numbers—

$\frac{321}{7}$, $\frac{92}{21}$, $\frac{411}{9}$, $\frac{623}{11}$, $\frac{143}{10}$.

10. 7462×96=? Divide the product by 24.

LANGUAGE.

Fifth Grade.

1. Rule the paper by the model used in your class, and put in the proper columns all the words in the following sentences:

1. The raging sea devours many vessels every year.

2. William Irwin is the Governor of the State of California at the present time.

3. The noisy boys play at various games in the spacious school-yard.

4. O, how brightly the sun shines to-day!

2. Define: 1. A noun. 2. A common noun. 3. A proper noun. 4. A verb. 5. A limiting adjective.

3. Form a derivative word from each of the following root-words, and tell what each derivative means: 1. Glad. 2. Talk. 3. Lion. 4. Good. 5. Work. 6. Lively. 7. Hero. 8. Tardy. 9. Love. 10. Author.

4. (*a*) Form an adjective from each of the following nouns: Fancy, doubt, mercy, fear, hope.

(*b*) Form adjectives from the following verbs: Tax, teach, blame, reason, purchase.

5. Write: (*a*) A sentence ending with an adverb; (*b*) a sentence containing a proper adjective; (*c*) a sentence containing five words—an article, an adjective, a common noun, a verb, and an adverb; (*d*) a sentence containing two abbreviations; (*e*) an interrogative sentence, containing a proper adjective.

6. (*a*) Mention three uses of capital letters. (*b*) Write the names of the second month of the year, the fourth day of the week, and the holyday which comes the 25th day of December.

7. Write one or more sentences, giving your own name in full, the State and county or city of your birth, the street and number of your residence, your father's occupation, and the name of the school which you attend, your grade, and the name of your teacher.

8. Correct the following:

1. Him and me done it.
2. Yourn is here but hisn is there.
3. I have went there often.
4. The policeman seen him.
5. Them apples isn't good.

9. Write five sentences, each containing only *two* words—a noun and a verb.

10. Give the meanings of the following abbreviations: N. B., C. O. D., A. D., P. S., P. M.

LANGUAGE.

Third Grade.

1. Distribute into columns all the words in the following sentences:

The aged soldier slowly walked along the dusty road toward his native village, which he saw plainly before him in the near distance, and his eyes filled with tears when he thought of his dear old parents in that humble English cottage home—those parents who had given him their blessing so long since, when he left them to enter the army of his country.

2. Write one or more sentences stating your name in full, the name of the State, county, or city of your birth, the street and number of your present residence, the name of your school, your grade, and the name of your teacher, and the studies which you are now pursuing.

3. (*a*) State three uses of capital letters.

(*b*) Give the names of three marks of punctuation.

(*c*) Name four kinds of sentences.

4. (*a*) Write the names of the second month of the year, the fourth day of the week, the season succeeding summer, the holyday which falls on the 25th of December.

(*b*) Give the appropriate abbreviation for each of the following: 1st. Afternoon; 2nd. Postmaster; 3rd. Member of Congress; 4th. Postscript; 5th. Noon.

5. Define a noun, a verb, an adjective, a common noun, a proper noun.

6. Write five expressions containing a noun in the possessive case and change each to the possessive form.

7. Make five statements about the State of California, and then rewrite the whole in a single sentence.

8. (*a*) Write the plurals of ox, valley, hero, wharf, life, deer, sheep, woman, potato, tooth.

(*b*) Write two sentences, each containing a predicate adjective.

9. (*a*) Give the comparatives and superlatives of nice, pretty, little, generous, bad, joyful.

(*b*) Write a sentence about the Mississippi river, containing four adjectives.

10. (*a*) Form adjectives from the following:

1. (Nouns) Joy, hate, death, love, fear.
2. (Verbs) Eat, drink, tax, teach, purchase.

(*b*) Write the adjectives formed from the following: 1. Spain; 2. France; 3. Norway; 4 Sweden; 6. Ireland; 6. Japan; 7. China; 8. Paris; 9. Philadelphia; 10. Peru.

NOTE.—These sets of questions are to be used according to the judgment of the teacher, for oral or written examination, or for drill at such times as may be deemed expedient.

If women could be found with muscles of iron and nerves of steel, from such our primary teachers should be chosen, for the tasks laid upon them are far too heavy for creatures made of flesh and blood and bone of the common sort. Few can bear their part in the primary departments for any great length of time without falling into a state of chronic weariness.

BOOK NOTICES.

THOMPSON'S PRACTICAL ALGEBRA. By Wm. Thompson, LL.D., author of a Series of Mathematics. New York: Clark & Maynard.

This Algebra, like several other works recently reviewed by us, and bearing the imprint of this house, is of superior merit. It is what it purports to be, a pre-eminently *practical* work. It is, what has long been needed for instruction in Algebra, a complete treatise on the subject in one volume.

The definitions are clear and brief; the principles are so gradually developed and so aptly illustrated that they may be readily grasped by the average student; all demonstrations are brief; and best of all, the problems, which are numerous and varied, are practical, and avoid the character of puzzles.

Typographically and in binding, this book is decidedly superior to any other algebra we have yet seen. California teachers, who instruct in the subject, will do well to examine the book. The price is low—"83 cts. for introduction.

HENDERSON'S TEST WORDS IN SPELLING. New York: pp. 104. Price 20 cts: for introduction at $1.80 per dozen.

This is a book that every teacher on the coast will be delighted with on sight. It is precisely what all teachers have long needed. It is not merely a collection of difficult words; but, contains, mainly, a large number of those ordinary words which are liable to be mispelled. In addition, each word is defined; there is a list of words similar only in sound, and a list of common geographical names.

The book must be seen to be fully appreciated.

We have taken this book into our own schoolroom, and find it produces most excellent results.

PALM BRANCHES, by S. M. Mills. San Francisco: A Roman & Co.

Conscientiously, we can't say that we admire this book. And again there is nothing about it to object to. It is a love story, so sickly sentimental, so weak, that if the author ever becomes famous, he will thank us, with tears of gratitude, for stopping right here.

A GRAMMAR SCHOOL HISTORY OF THE UNITED STATES, by John J. Anderson, Ph.D. New York: Clark & Maynard.

This is a new edition of the history of the United States formerly used in the schools of this State. But so greatly has the work been altered and improved, that it is almost beyond recognition. Every good point of the old book has evidently been retained, and improvements of every description made. The maps are good and numerous; it is copiously illustrated; the text is well arranged, and there are full notes; review questions and summaries are numerous. In fact, nothing seems neglected which should appear in the "make-up" of a good school history. We venture the assertion, that had this book been as good ten years ago, it would still be used in the schools of this State.

THE WORLD OF SONG, by H. M. B. San Francisco: A. Roman & Co.

This is a collection of "poems," a few good, some indifferent, and many decidedly bad. Had the good ones been published alone, the volume would have been decidedly smaller, and our opinion of the author, as a poet, much better. In the preface, she states that the volume is published at the "earnest solicitation of many friends." We think she may well exclaim—"Heaven save me from my friends."

MODERN PEDAGOGY, A Poem, by George D. Hunt. Salem, Ohio: W. D. Henkle: pp. 32; price 15 cts.

This is rather an astonishing production. Astonishing, not on account of its merit, but because we would scarcely expect one to put into rhymes and cantos a talk about "The Teacher's Mission," "The Teacher's Adversities," "The Teacher's Vanity," etc., etc.

THE APRIL MONTHLIES.

Appleton's Journal for April exhibits in its table of contents that variety of subjects which characterizes this magazine. The opening paper is the second of its new series entitled "The American at Work," this time describing the cheese-maker at his tasks, and the process of the manufacture. It is from the pen of Mr. William H. Rideing, and is abundantly illustrated by Mr. Kelly. A fresh and enterprising paper, by J. Brander Matthews, is entitled "About the Ballet." The portraits which accompany it of Sallé, Camargo and others, reveal the fact that the dresses first used were almost unobjectionable on the score of morality. Mrs. Annie Edwardes' story of "Jet" is continued; the frontispiece by Mr. Reinhart, which illustrates it, is particularly good. There is a telling short story by John Esten Cooke, entitled "The Wonderful Family"; a short paper by R. H. Stoddard, denouncing the publication of Keats's love-letters; a spirited debate by two speakers under the title of "A Colloquy," on the function and place of poetry; and papers by Olive Logan, M. E. W. S., and others.

With this April number, *The Popular Science Monthly* closes its twelfth volume. It is not too much to say that there is no educating medium in the world that has done so much to give a taste for scientific investigation, and train the minds of the multitude in correct habits of thought and study, as this magazine. This number opens

with a most able and original paper by Herbert Spencer—the third of his series on the "Evolution of Ceremonial Government," and devoted to the subject of "Mutilations." Prof. Lockwood follows with a lively and interesting article on "The Eucalyptus in the Future." Then comes the second and concluding part of the elaborate essay of Prof. Marsh, on the "Introduction and Succession of Vertebrate Life in America." "The Wicked Weasel" gives a vivid portraiture of the hunting habits of that curious little rascal. "The Dissipation of Energy," is discussed with his usual felicity of illustration and remarkable clearness of statement, by Mr. George Iles. Prof. Pierce continues his solid discussion of "The Logic of Science" in a fourth paper, devoted to "The Probability of Induction." In the next article Prof. Mayer describes that "acoustical marvel of the century," "Edison's Talking-Machine." The illustrations are new, and the paper is the best that has appeared upon this subject. "The Marpingen Miracles," "The Source of Muscular Power," "Living Corals," "Poisons of the Intelligence," and a sketch of Prof. Secchi, (with portrait) conclude the body articles. Among other topics the editor discusses Clairvoyance. Those who wish to keep pace with the advance of scientific thought, represented in its most attractive forms, will do well to subscribe for this magazine.

Harper's Magazine for April is a many-sided number, containing something for every class of readers. In the opening article, entitled "The American Clyde," the reader is introduced to the great iron ship-yards on the Delaware. Two illustrated descriptive papers have for their subjects Siena, the ancient rival of Florence, and the Hartz Mountains. "The Electric Time Service" is a scientific subject, treated in a popular style br Prof. S. P. Langley, of the Alleghany Observatory, with illustrations. "The Normal College of New York City," by W. H. Rideing, is an important educational paper, with bright and novel illustrations by Reinhart, Miss Curtis, and other artists. A fine sketch, unillustrated, by Mrs. Sarah C. Hallowell, given in another part of the number, is full of suggestions as to the physical and mental training of girls, There is an illustrated paper by W. L. Alden, entitled "The Perfect Canoe." Art subjects are given considerable space. The second paper of the series, on "Old Flemish Masters," is about Hubert and Jean van Eyck. The paper is beautifully illustrated. Under the title of "A New Departure in American Art," G. W. Sheldon contributes a very interesting article on the new art association—the "Society of American Artists"—whose first exhibition is now being held in the Kurtz Gallery, in New York city. Among some beautifully illustrated poems, Milton's "L'Allegro" is reproduced, with twenty-two illustrations, made by the artist of the London Etching Club some thirty years ago. A Song, by C. G. Rosetti, is the motive for an exquisite illustration by Abbey. Of fiction there are the two remarkable novels, by William Black and Thomas Hardy, and a number of excellent short stories. A timely paper is contributed by Edward Howland, entitled "Our Indian Brothers." The "Easy Chair" chats of timely subjects—the early days of the pontificate of Pius the Ninth—the Eastern Question—the piety of the Press—the morality of Dancing, etc. The other Editorial Departments are abreast of the time, including a capital "Drawer." This number of the magazine contains over one hundred illustrations.

The numbers of *Littell's Living Age* for the weeks ending March 9th and 16th, respectively, have the following noteworthy articles: Dr. Schliemann's Exploration of Mycenæ, Edinburgh Review; Charles Sumner, Westminster Review; Constantinople—a Lecture delivered in Aberdeen, January 3rd, 1878. by James Bryce, Macmillan's Magazine; A Ride for Life, Blackwood; Erica, a serial story translated for the *Living Age* from the German of Frau von Ingersleben; The Education of Girls—their Admissibility to Universities, Westminster Review: Above the Clouds; a Reverie on the Bel Alp, Blackwood; Liquefaction of Oxygen, Nature; with the usual choice poetry, etc. The back numbers containing the first instalments of Erica, and a story by Miss Thackeray, are still sent gratis to new subscribers for 1878.

For fifty-two Numbers, of sixty four large pages each, (or more than 3000 pages a year) the subscription price ($8) is low; or for $10.50 any one of the American $4 monthlies or weeklies is sent with the *Living Age* for a year, both postpaid. Littell & Gay. Boston, are the publishers.

Of the eighty cuts in *Scribner* for April, twenty-three are devoted to the illustration of life and sport Among the Thousand Islands. Mr. George B. Prescott, Electrician of the Western Union Telegraph Company, writes of The Telephone and Phonograph, with explanatory cuts. The revival of Macramé Laces calls forth a little paper by Clarence Cook, which is illustrated with antique Italian and American designs. This month's contribution to the occasional papers on American sports is a personal narrative of Deer-hunting on the Au Sable, (Mich.) by W. M. Laffan. American industry of recent growth is described by Julian Wilcox, in an illustrated paper—How Lead-Pencils are made. This instalment of Mr. Eggleston's Roxy has a novel drawing by Mr. Shirlaw, the President of the new Society of American Artists. There are two short stories: one of the West—Two Saints of the Foot-hills, by Bret Harte, said to be in his best manner; and one of the South—King David, by Constance F. Woolson. There are letters from an American schoolmate of Mercedes, of Spain, entitled A Queen at School. In her second paper in advocacy of Twenty-six Hours a Day, Mary Blake discusses the reasons why women should cultivate habits of reading and study. Miss Trafton's serial, His Inheritance, changes scene to Massachusetts. C. B. Warring discusses the relations of the Mosaic Creation and Modern Science, maintaining that there is no important discrepancy between the two. The poetry is by Maurice F. Egan, Annie R Annan, Mary Ainge De Vere and others. The departments are even more than usually interesting and able. This nummer closes volume XI.

In *St. Nicholas* for April the stories of foreign life form a leading feature. There is, first, Sara Keables Hunt's account of How Kitty was Lost in a Turkish Bazaar, in Egypt, illustrated by a frontispiece; then follows Old Nicolai, a tale of Russian peasant life, with a picture of a snow-storm on the Steppes; next comes Puck Parker, by Mrs. Lizzie W. Champney, with two illustrations by Mr. J. Wells Champney, a story of a little boy's escape from beleaguered Paris in a balloon with his father and mother; and, after these, The Three Horse-shoes, by David Ker, a tale of how Maurice de Saxe, Marshal of France under Louis XV, found a Dutch blacksmith as strong as himself. Easter in Germany. with nine illustrations, deals with German country customs of the Easter time; and A Visit to a London Dog-show is a description, with several pictures, of an exhibition of canine pets of all sorts, in Alexandra Palace, London. Drifted into Port; Under the Lilacs, Miss Alcott's story; The Professor, by Mr. Clarence

Cook; some very funny Letters from Dick Hardin, away at School; a laughable story, by Howard Pyle, entitled Wise Catharine and the Kaboutermanneken; and some comical verses, written by Mrs. E. T. Corbett, and furnished with droll pictures by Mr. L. Hopkins, narrating the woes of Three Wise Women, on land and sea. And, besides all this, there are poems, humorous and tender; four versified charades, by Mr. C. P. Cranch; a comic full-page picture, by M. Woolf; and an attractive talk with girls uhder the title—Always Behindhand.

The *Atlantic Monthly*, always classic and standard, has not suffered in the absorption of the *Galaxy*. The April number is full of exellent things. Among them are Detmold, a Romance, by W. H. Bishop; A Persian Poet by Thomas Bailey Aldrich; Crude and Curious Inventions at the Centenial Exhibition, by Edward H. Knight; Italy revisited, by Henry James; April Days, extracts from the Journal of Henry Thoreau; Lincoln's Triumph in 1864, by Gideon Wells; Americanisms, by Richard Grant White; The Lobby, its Cause and Cure, by Arthur G, Sedgwick; The Adirondack Verified, by Charles Dudley Warner. In addition, there is some excellent poetry by Edgar Fawcet, Edward C. Steadman, Luella Clark; and the usual excellent departments.

The *North American Review* for March and April has, if possible, even more than its usual interest and value. It opens with the Army of the United States, by Gen. Jas. A. Garfield, with letters from Generals Sherman and Hancock. This is a powerful and logical protest against any further reduction of our army. English and American Universities Compared, by Prof. Charles W. Eliot, of Harvard, is able and interesting; Gen. Richard Taylor, President Taylor's son, contributes an article of absorbing interest—Stonewall Jackson and the Valley Campaign; George W. Julian's article, The Death Struggle of the Republican Party, is the only flaw in this number of the *Review*. It is out of place. As a Democratic stump speech, or campaign circular, it would probably be a success. The position of the Jews in America, by Rabbi Gustav Gottheil, and The Political Alliance of the South with the West, by Senator Morgan, are both excellent. Probably the *piece de resistance* of the whole number is the concluding article, or Syposium—The Doctrine of Eternal Punishment. This is discussed by Dr. Noah Potter, Rev. O. B. Frothingham, the very Rev. Thos. Preston, Dr. Bellows, Dr. Wm. R. Williams, and Dr. Thomas J, Sawyer.

Harper's Bazar and the *Weekly* come to us regularly. We can say sincerely that we wish they were in every household in the land. The *Weekly* wages a constant and active warfare against all that is low and ignoble in politics, dishonest in the administration of the national finances, and retrogressive in education and religion.

The Independent during March had among other good things, a poem by Bret Harte; an article by Prof. Asa Gray; Mrs. Clemmer's usual letters from Washington; Dr. Joseph Cook's sermons and lectures, a single one of which is worth many times as much as the yearly subscription to the paper. We have a suggestion to make right here, to the editors of some of our weekly literary papers: get the *Indeendent* and use your scissors liberally.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR PRIMARY SCHOOL WORK. Edited by Mrs. H. M. SOLOMONS. [Bush St. Primary School, S. F.]

SUGGESTIONS FOR HIGH SCHOOL WORK.

Composition Writing

To express thought with accuracy and facility is an art which few acquire. Its value cannot be over-estimated, when we realize that one of the characteristics of our age is a tendency to make all valuable ideas universally known. Whatever station in life our pupils may hereafter be called upon to occupy, they will have frequent occasions to express themselves either by voice or pen. One of the most important duties we, as teachers, have to perform is

to see that they at least have opportunities to do this well. Of what value would a theoretical knowledge of fire-arms be to a soldier if he were ignorant of their use? The young man or woman leaving school brim full of knowledge, but without the power of shedding it upon pages of paper through a pen point or of hurling it at an audience through the tip of the tongue, is even more weak and helpless than the unlettered, since the former generally know when they are making fools of themselves while the latter do not always. No amount of rules of syntax or grammatical technicalities will ever give the art of expressing thought with ease, grace and force, any more than a thorough knowledge of the rule of addition will make an expert accountant. If you wish to train a class to add accurately and rapidly you will give very little attention to a rule, but you will require the pupils to add day after day, week after week, and month after month, until they can read combinations of figures in a column as readily as they can read combinations of letters in a line.

So also if they ever become expert in composition, they must write, *write*, WRITE; not a labored exercise once a month, but daily for years. We have learned to look with distrust upon all teachers who are unable to make composition writing an interesting part of the day's work.

By it the teacher has a most valuable opportunity of becoming familiar with the mental peculiarities of each member of the class, and of making the acquaintance of many of those seemingly unimportant facts which the skillful teacher knows how to use so well in a thousand different ways. The exercise need not become tiresome, since it is capable of so many variations. Arithmetic is the same thing over year after year, but composition writing may be presented in so many different ways that it will always possess the charm of novelty. We hope from time to time to give hints for practical work from a teacher who has met with remarkable success in imparting skill in this valuable art. We also cordially invite any who have made this line of work a specialty to favor us with communications. To begin, we suggest the following exercise.

Explain to the class that when thoughts are communicated a series of mental pictures are produced in the mind of the reader or listener, the vividness of which will depend upon two conditions—the skill of the speaker in arranging his thoughts and clothing them in words, and the attention of the listener, and his readiness in seizing upon the different combinations. In order that the subject may be clearly understood by the class, request that every member give undivided attention while you repeat a word or sentence, as, for instance, the one word dog. Then after half a minute ask several members of the class to state what kind of a dog was presented to their minds when you uttered the word. You and your class will be surprised and amused at the variety of mental pictures that flashed through their minds as you pronounced the word. Then try another word or two if you choose, until the class fully comprehend the fact that audible words produce mental pictures. By this time your class is wide-awake and ready for business, and you may repeat a sentence, as, They walked across the bridge. Now ask them to write what they saw, describing in detail the general surroundings, the bridge and the individuals. After this is done, ask Mary to read her exercise aloud. Her mental picture will thus be transferred to you, and the resemblance between the two will depend upon her skill in the art of composition and your degree of attention to her reading. Modifications of this exercise will readily suggest themselves, and we think a few trials will convince you that this is a good drill in narrative or descriptive composition. Either try it or suggest something better.

A Plan for the Study of Zoology in the High Schools.

I. Management of the Work.
II. Synopsis of Plan of Study.

I. Management of the work.

1. Teachers's Preparation.
   1. Study — from natural objects and from books —of subjects to be presented to the class.
   2. Arrangement of a definite plan for the month.
   3. Mondays, review;* looking over and marking pupils' notes and drawings of previous week.
   4. Tuesdays, Wednesdays and Thursdays, lectures.†
   5. Fridays, practical work with class; [drawing, dissecting, minutely describing, classifying, &c., by class under direction of teacher.

2. Pupil's Preparation.
   1. Materials.—Blank book for copying notes; small magnifying glass; *smooth* drawing-paper; penknife, and a large needle, set in a wooden handle.
   2. Class work.
      1. Mondays, review; exchanging, correcting, and handing in notes and drawings‡ of previous week.
      2. Tuesdays, Wednesdays and Thursdays, taking notes of lectures.
      3. Fridays, bringing in specimen, as directed, for drawing, dissecting, minutely describing, classifying, &c., by class under direction of teacher.
      4. Outside work, collecting, preparing and classifying specimens.

*Reviews, either oral or written, to consist mainly of questions *growing out of* knowledge imparted, not of mere facts learned from lectures.

†Illustrated by blackboard drawings, of anatomy, &c., and of creatures not readily obtained; (pupils to copy).

‡All drawings to be pasted into the note books, before handed in.

II. Synopsis of Plan of Study

1. Introductory lessons, value of study of Zoölogy; an "observing" science; financial and other selfish reasons; furnish illustrations, Colorado Potato Beetle, Grasshoppers, &c., &c.; some mention of eminent naturalists, Aristotle, Linnaeus, Cuvier, Swammerdam, Agassiz, &c., and their works. Geographical distribution of animals; distribution in time; means of life; zoölogical regions; climatic conditions.
2. The Four Plans of Structure, defined. Some simple classification, leaving out classes not to be taken up in the course, as follows in 3.
3. Animal Kingdoms.

Sub-Kingdoms.	Classes.	
I. Vertebrates.	1. Mammals.	
	2. Birds.	True Reptiles.
	3. Reptiles.	Batrachians.
	4. Fishes.	
II. Mollusks.	1. Cephalopods.	
	2. Gasteropods.	
	3. ————*.	
	4. ————*.	
	5. Conchifera.	
	6. ————*.	

mal Kingdom.	III. Articulates.	1.	Insecta.
		2.	Arachnida.
		3.	Crustacea.
		4.	Cirripeda.
		5.	Annelida.
		6.	Entozoa.
	IV. Radiates.	1.	Acalepha.
		2.	————*.
		3.	————.
		4.	————.
		5.	————.
		6.	————.

* These are left out for the reason that it is not possible to take up all the classes in a six months' course.

3. In the next number the synopsis of plan of study will be continued, by giving, in detail, the method of presenting the study of articulates.

Respectfully, IRENE HARDY.

SUGGESTIONS FOR GRAMMAR SCHOOL WORK.

Grammar Schools, Minus Grammars.

There has been recently a loud outcry in some quarters against technical grammar being taught in our grammar schools. We admit that the deductions of the science of language is pretty strong diet for children; and if circumstances favored, we should prefer to have language taught by the teacher without book lessons. But we are quite well convinced from what we have seen and heard that the end will not be accomplished in that way. We therefore shall plead for a suitable text-book on grammar, for first grade pupils at least, to be continued in the high school course. We cannot argue the point, or give our reasons; but we know that we shall be supported by some of the ablest teachers in the city.

C.

Analysis of Addition of Common Fractions.

Let it be required to add $\frac{3}{4}$ and $\frac{5}{7}$.

Operation $\frac{3}{4}+\frac{5}{7}=\frac{21}{28}+\frac{20}{28}=\frac{41}{28}=1\frac{13}{28}$ *Answer.*

Analysis:—We first reduce the fractions to a common denominator—that is, to the same fractional unit—because quantities having unlike units cannot be added. In this example we reduce the fractions to *twenty-eighths*—28 being the least common multiple of the given denominators, 4 and 7.

Thus: $(\frac{1}{4}=\frac{7}{28};)$ $(\frac{1}{7}=\frac{4}{28};)$

$\frac{3}{4}=\frac{21}{28}$; $\frac{5}{7}=\frac{20}{28}$.

Here we find the fractional unit to be $(\frac{1}{28})$ *one twenty-eighth*, and as we have 21 of these *twenty-eighths* to add to 20 of these *twenty-eighths*, we say, $\frac{21}{28}+\frac{20}{28}=\frac{41}{28}=1\frac{13}{28}$ *Answer.*

The above analysis is exactly what is given in the third grade of a grammar school in this city. If any grammar school teacher will be kind enough to give us another analysis that is thought to be better, we will gladly insert it.

SUGGESTIONS FOR PRIMARY SCHOOL WORK.

Positions in School.

Too much consideration cannot be bestowed upon the matter of positions assumed by pupils in school. Perhaps none but parents who have seen children grow up are fully aware of the mischief which may, and no doubt often has, resulted from want of care on the part of teachers in this respect. While so much is said and thought and in fact done in regard to ventilation, exercises, etc., the paramount importance of pupils sitting, standing, and keeping their hands in good positions, is lost sight of.

I believe very few teachers require their pupils to fold the arms, (the way in which we were all made round-shouldered) but I believe the usual method now is, to clasp their hands and rest them on the desk. While this is a good position as a change and rest, I think the very best, while the hands are disengaged, is to fold them be-

hind. The tendency, then, is to grasp the arms, which makes this the best position that could be devised for throwing back the shoulders, expanding the chest, and inducing a habit of standing and sitting erect.

But the most important and vital point, in this matter of posture, is the length of time children are required to stand, in primary classes. I have heard of teachers keeping children of a tender age standing from a half an hour to an hour and a half. It seems incredible, but it is true. I have known of teachers who have kept their pupils standing continuously during several recitations. It is not necessary to expatiate upon the cruelty of this practice, nor upon the injurious consequences likely to ensue. Of course the teachers were not aware of the full extent of their mistake, but so long as it is necessary to employ inexperienced young teachers, (and we all were young and inexperienced once) who cannot be expected to possess tact and judgment, there should be an understood limit, by which all might be governed.

Waste of Time.

There seems to be a great waste of time in eighth grades, in spelling over and over again the words on the charts. I refer to the monotonous drawling, sing-song, concert spelling of c-a-t, cat, b-a-t, bat, r-a-t, rat, l-a-m-b, lamb, heard day after day in all eighth grade classes.

Does any one suppose, for a moment, that the children are learning anything by this exercise, except to drowse over their lessons, and to acquire a habit of careless, mechanical, drawling recitation? Indeed, I think that a good, sound nap, during the ten or twenty minutes so occupied, would result in much greater benefit, both physically and mentally.

I do not suppose that any teacher relies upon this exercise for teaching her pupils reading, nor yet the alphabet. Then it must be for the purpose of teaching them to spell.

Now every child, when properly taught, learns to spell all simple words, while learning to read them; and words with difficult or unphonetic spelling will certainly never be taught in this way. Is it not then worse than waste time to keep children monotonously spelling words with which they are already familiar? Would it not be infinitely better to spend the time in teaching them something which they do *not* know?

Another way in which time is wasted in primary classes is in so much counting.

When children once know how to count to one hundred they never forget it. Why, then, oblige them to go over it every day? I have noticed that children count nicely until they can count well, when they immediately begin that terrible sing-song, so distressing to sensitive ears. Perhaps these exercises are given as a change for the pupils when tired and restless. If so, we have calisthenics, pretty little songs, or occasionally a story, to relieve the tedium. And here, again, is just where an object lesson belongs.

At this time children can be greatly interested by any object held before the class, or given them to examine; and will readily give their ideas about it, and eagerly try to discover new qualities, etc. Even what might be termed a *talk* between teacher and pupils, on any subject, suggested by a former lesson, perhaps, and within the comprehension of the little ones, will have a restful and beneficial effect on both. It will wake up the children to renewed energy, and moreover make the teacher better acquainted with them, which last is not the least benefit to be derived from such an exercise.

H. M. S.

Several excellent articles for the PRACTICAL DEPARTMENT, already in type, have been omitted until next month for want of space.

THE PACIFIC

SCHOOL AND HOME JOURNAL.

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ONE OF OUR WEEDS.

BY VOLNEY RATTAN.

[Teacher of Natural Sciences in San Francisco Girls' High School.]



One of the first things noted by the Eastern farmer upon his arrival in California, is the absence of grass in our pastures, where fat cattle have frequently not even clover to offer as an excuse for their sleekness. His astonishment is kept within safe bounds by incredulity, as he listens to our talk about California weeds being as good as clover or timothy; and downright disbelief drives the last trace of wonder from his face when we assert that the poison oak, which has given him so rough an experience, is a wholesome forage plant. One of the most useful as well as the most interesting of these weeds is represented on this page. It is commonly known on this coast as *filaria* [pronounced, filar*ee*] or pin-clover, names suggested by its long-beaked fruit. Not less appropriate is the scientific name *Erodium*, from the Greek word for heron, a bird whose bill is suggested by this fruit. Indeed this kind of fruit is characteristic of the Geranium family of plants, many of which have for common names stork's-bill, crane's-bill, etc. Although Erodium is common in Europe, South America, and other parts of the world, it seems most at home here, and here it is the most serviceable to man. In valleys and on mountains throughout California this plant grows with varying luxuriance. No sooner have the seeds fallen



than, with restless industry, their ever-twisting and untwisting beards tumble them into the crevices of the now cracking ground, screw them this way and that way, impelled by the daily changing moisture of the air, until they are planted securely out of reach of hungry birds. No other plant more readily adapts itself to circumstances. Does the germinating seed find itself on a sterile soil, or is there a lack of rain? It economizes its resources, makes a stem but half an inch high, develops a pair of tiny leaves between which grows a single flower, and in a few days five seeds scramble for the nearest crevice, where, under the influence of a more propitious season, they may send forth stems three feet in length, thick and heavy with beef-and-butter-making material.

There are several species of erodium in this State, but only two bear the name filaria; and, strangely enough, very few stock-men or farmers distinguish them, although their herds undoubtedly *smell* a difference. The most common and most useful species (*Erodium cicutarium*) has a grayish green foliage, with pinnately lobed leaflets; the other (*Erodium moschatum*) is of a lighter green, the leaflets—usually larger—are scarcely lobed, and, when wilted, gives out a musky oder. The cut shows at *a*—natural size—a leaflet of the first, and at *b*, a leaflet of the musky filaria. The two species may be found growing side-by-side in any field. I know of few plants so well adapted to awaken an interest in botany as these two species of erodium. Let each pupil in the class be provided with good specimens of both kinds of the plant, then gradually draw out such facts as these:

The stem is juicy, and a thin cross section shows a green ring outside, (the bark) a row of dots, or a white ring, (the woody part of the stem) and a light-colored nearly transparent pith (or a hollow) in the center. The leaves are opposite, but never equal. The leaf next to the flower or seed-stem is always the smaller, having about three pairs of leaflets, while the larger has five. There are only three stipules where we would expect four, and one is always larger than either of the other two. There is usually a bud between each flower stem and the leaf at its base. The flower stems grow in length after the flowers fall. There are five seed pods together around a center-piece. Each pod is open enough on its inner side to disclose its single seed. These facts and many more quite as evident to sharp eyes will prove deeply interesting to even the dullest pupils. After a careful examination of one plant let each of its parts be compared with the like part of the other plant. Differences which I have indicated and others will be detected. Questions will arise such as: Do cattle eat both kinds with equal readiness? Why are the seed pods barbed? Of what use is the beard? What causes it to twist? Why does it untwist? Are the silky hairs—represented at *d*—of any use? Why are the

leaves unequal? Where do the beards first become loosened from the central axis? Such questions should be answered by observation and careful experiments. Let the pupils find out whether the seed pods travel in straight lines; how far once untwisting will carry the seed; whether the seeds really can plant themselves; why it is easier for stock to "run out" wild oats than filaria, etc. I would avoid use of technical terms until the pupils become hungry for them. Children easily learn names of things which interest them, and they are quite willing to use adjectives which shorten descriptions. These plants may be studied with increasing interest half an hour at a time for many days. Let the pupils write out the results of their experiments and observations, to be read instead of compositions upon Faith, Hope, Charity, and like topics. Exercises of this kind are of more value to the teacher than any others, because they are best adapted to filling up of educational ruts. They are of great value to the pupils because they stimulate research. When so many plants growing by our country schoolhouses are ready to tell life stories as interesting as fairy tales, it is a pity their language should remain an unknown tongue to those who daily pass them.

THE INCREASE OF STUDIES IN THE PUBLIC SCHOOLS.

BY J. L. McCLELLAND.

[Fresno County.]

Among those who take an interest in popular education, there are many who appear to think that the benefits of the public school system may be extended by a course somewhat similar to that proposed by the money "inflationists" as a remedy for hard times. They expect the common schools to become the dispensers of all knowledge. Is general science of use to the people? These "inflationists" will furnish it all through the common schools. It is as easy as supplying the people with "cheap money." Start the printing presses, grind out a hundred thousand little books labelled—"For Common Schools," authorize their use, aud the grand work is accomplished. Ignorance receives a tremendous blow, science is popularized, and the rising generation is to be made superlatively wise.

Besides being well versed in the common branches, the young folks are to have in their minds the outlines of botany, geology, zoölogy, and other *ologies*, of which the graduates of Yale and Harvard have had only time to learn the names.

Nor is this all. Since every one ought to have a trade of some sort, it is proposed to add to this "elementary" education a knowledge of various trades; and all of this course of study and industry is to be completed by the school children, nor is the duration of childhood to be lengthened.

In opposition to these extreme views, there are many who advocate a return to a gold basis; that is, they would limit the province of the public schools to careful instruction in those branches long recognized as *the* rudiments. The people who hold these views are not all ignorant "old fogies." On the contrary, many of them are of the highest culture, and deeply interested in the cause of education. It cannot be that this view arises from a spirit of criticism alone. The character of those who urge it precludes that idea. It must have some foundation in reason. That reason cannot be a dislike for popular education, for there is abundant evidence for the belief that those who advocate the opinion to which reference is made, would be glad to see the people better versed in every kind of knowledge than they are ever likely to become through the agency of public schools alone. The reason for the opinion certainly is, that the schools are believed to be slighting the rudiments.

They are thought to be giving instruction in sciences to the neglect of the "three R's." It is understood that general information takes the precedence of mental discipline; that the young folks, while acquiring much *learning* are not getting enough of *education*.

Cheap scientific knowledge has been in greater demand during the past few years than ever before. Accordingly, the school authorities of this State, and of some others, acceded so far to the wish of the people as to introduce several advanced studies into the public schools. They were eminently proper branches for the people to become acquainted with. Nothing was more reasonable than that, along with music and drawing, philosophy and physiology should be added to the rudiments of an education. But even with this temperate increase of studies, the results have not appeared to be satisfactory in every quarter.

It may be worth the pains to inquire whether there is any cause for this dissatisfaction. Evidently, those who planned the present school course intended it to bring about good results. Their theory is unexceptionable. There is a regular gradation of study. The primary branches are to be thoroughly studied before advancement to higher ones. Arithmetic, reading, and writing are to have the most adequate attention before philosophy and other advanced branches are to be commenced. The course appears to be easy of pursuit; and where pupils are regular in attendance, and where the teacher is judicious, and has complete control for several successive years, it may be carried out with success. Large towns can furnish these conditions, but in the country and villages there are many circumstances which interfere very materially with any regular course of common school instruction, and render a long course almost impracticable. Irregular attendance is a circumstance of much inconvenience, but not the only one. The teacher being commonly employed by the term, his interest is likely to be *ephemeral*. If he wishes to secure his place, he cannot afford to neglect pleasing his patrons. The people love to see their children promoted. Those who have advanced scholars at school are usually much more interested in them than other parents are in their children, who happen to be in the lower classes. The higher studies are more showy, and please the people best. The pressure upon the teacher, for the reason mentioned, is therefore strong to advance the school as rapidly as possible toward the *upper end* of the course of study. Policy and self-interest are likely to induce him to permit the showy branches to be brought into much more notice than the primary and essential ones.

It is of little avail to say that it is the teacher's fault that these things are true. There are few men or women anywhere, but will occasionally fondle the hand that feeds them, where it is perfectly convenient to do so, and when, by that means, they are likely to get better fed. Besides, if it were possible to admit into the profession only those who could be relied upon to be firm in everything, and independent of the evident wishes of the people and the entreaties of the school with reference to the course of study—if only such persons were allowed to teach school, the progress of popular education would be seriously impeded by a want of teachers.

But if no exterior influences were brought to bear upon the teacher, there appears to be a necessity which compels greater attention to the advanced pupils than they ought to have. To make this clear, we will consider how the study of advanced branches is carried on in ungraded schools. The higher classes are commonly very small. In each of the majority of country schools, the number of those studying philosophy, physiology, and

other studies classed along with these, will not be more than five. Often it is but two or three. Nevertheless, these must have at least five recitations in one day, and not less than one hour and a half will be given to these recitations. Now it is probable that the average number of pupils regularly attending each ungraded school would not exceed twenty-five. If then, it is estimated that there are so many as five in the advanced grade, the average amount of the teacher's time given to each of these pupils is at least twenty-six minutes per day, while the other children can receive only eleven and a half minutes each. But when the number of first grade scholars is less than five, as it is in hundreds of cases, then each advanced student requires at least *three times* as much of the teacher's personal attention as can be given to each of the other twenty or more in the lower branches.

But when this matter is viewed in a financial light, it takes a still different phase. In country schools, where they have any advanced pupils, the teacher's average salary is about $85 per month. If in such a school there be five advanced pupils, the attention which the teacher can hardly escape giving them during eight months will cost about $200 of the public money, or $40 for each, while the attention which each of the other pupils can receive would cost only $24. If, however, there should be but three advanced students in a school of twenty-five, the cost of teaching each of these during eight months will be $66.

But the mere expense of this course of education is not a matter of great moment. The people can well afford to be taxed in the interests of education. The fact of there being few who take advantage of the opportunity so liberally provided does not impeach the wisdom of making the provision, in case it is *really* open to all. It is not reasonable to call that "class legislation" which makes such provisions. The propriety of giving bounties out of the public funds to such as plant forest and shade trees is not doubted; neither does any one question the policy of giving a bounty to those who destroy certain hurtful beasts; though in either of these cases only the few who make an effort can derive any direct benefit from the money thus liberally given. In the case of the public schools it is very much the same. In order to promote general intelligence, the State is willing to incur extra expense in making provisions for the assistance of those who wish to get a better education than common schools ordinarily afford; and though only a few avail themselves of the opportunity offered, yet the policy is believed to be justified by the fact that the schools are open to all.

But those who are not satisfied with the present list of studies find a much more substantial basis of complaint in the fact that the assistance given to those who desire advancement is accompanied by a corresponding diversion of attention from others who are in need of the utmost care. The parents of the advanced pupils expect this diversion; the inclination of most teachers is favorable to it; and in ungraded schools it becomes, in a certain degree, absolutely necessary.

However, the difficulties in carrying out the present course of instruction ought not, perhaps, to be named in disparagement of it; but they ought to be clearly understood by those who propose increasing them by *lengthening* the course. It appears reasonable that there should be some provision made for those who desire a little more instruction than is ordinarily given. If the common schools cannot furnish it, most of them will have to content themselves without it; and it is better that they should receive all the attention that the schools can afford to give them without infringing upon the rights of others equally deserving.

It is a question whether the present course of instruction, wisely planned as it is, does not include a little too much for the best interests of the ungraded schools. In the cities and towns it may be well enough, and with judicious management, it may produce excellent results in the country. But until the teacher is made more independent of the whims of the children, and the wishes of their parents, and until, at the same time, he is so situated that he himself will be more responsible for results, it will be very difficult to secure judicious management. An academy requires stricter rules than a common school; a college, more exact and extensive regulations than an academy. The larger the course of instruction, the greater care there must be in the management of it. But regulations of any kind are so loosely observed by the people, that it may be taken as a rule, that the longer the course in the public schools, the less satisfactory will be the results. The more numerous the studies, the shallower the education.

Plainly, the scope of common school education ought to be confined to narrow limits. It ought not to be forgotten that there is a limit to the time during which children can be permitted to attend. It is easy to decree the study of new branches, but it is not easy to lengthen the period of school life in a corresponding degree. No matter what school boards may do, the parents are likely to regulate that matter to suit their own convenience. But if new studies are permitted, the eagerness of the children for novelty, the vanity of parents, and the quiet acquiescence of teachers will secure their introduction almost everywhere, and very frequently to the neglect of the most important branches. Now if ten text-books are gone over in the same time that was formerly required for five, they are either too simple, or else some of them must have been slighted.

It ought not to be forgotten by those who wish to have the children get a smattering of everything, that mental discipline is worth more than information; and that a course of study which furnishes children with good mental habits, and increases their mind power does infinitely more for them than that course which crams their memories with a little knowledge of every description, and at the same time engenders superficial habits of thought.

It is much to be desired that the rising generation be well versed in science; but the schools cannot make it so. The most that they can do is to inspire a love of knowledge, and fit the youthful mind for gathering it for itself, and properly applying it. Nothing further can be well done.

The present custom of making science primers for the common schools is of questionable utility. The study of them too often *satisfies*, rather than excites curiosity; and the outlines are so meager that the mind gets almost none of that training which ought to be derived from such studies. One science, wisely selected and well studied, its principles firmly grasped, and many of its details understood would accomplish far more toward promoting a taste for science of every sort than the present method of skimming over the general outlines of three or four.

Education, discipline, culture—the ability to think with rapidity, accuracy, and force—there never was a time when this power was more needed than now. Mere information is of little value. Knowledge grows stale and useless faster now than ever before. The youth of to-day must, in the near future, investigate and understand many things that their present teachers know nothing of. To do this, they must have *mind power* of their own. Whatever we teach them, we cannot hope to relieve them from the necessity of thinking for themselves; nor can the schools provide them with a sufficient fund of information to last them all through life. Any course

of study, therefore, which, in its practical workings tends to promote superficial habits of thinking, or from any other reason, fails to increase the ability of the student to gather and apply knowledge for himself is not the best that could be desired.

IS BROWN DEAD?

BY CHARLES M. DRAKE.

[National City, San Diego County.]

MR. EDITOR: Is Brown dead, or does he still survive?

I know the State Board tried to kill him, but I fear he still survives. They had the will and nerve to destroy him, but did they have the power? Of course you know Brown—Goold Brown? He was, once, quite a respectable man, and no one stood higher in my estimation. Every observation of his I heeded. I lauded his rules and his exceptions. I admired the daring of a genius that could find his examples of false syntax in the pages of Chaucer, Shakespeare, and the Bible. Thus it is ever in our youth. We have our heroes; we feel for them the warmest ardor and affection. But, ah! too soon, the world, with cold, hard science, comes to us, and bids us doubt. She bade me doubt my friend. Love can exist with doubt no more than sweet milk with strong pickles.

Each new acquaintance spoke against my friend, and though I sturdily defended Brown, I was not able to answer some of the charges, to my own satisfaction. First came Mr. Pinneo, who said to me, "Charles, do you not think Brown is wrong in some of his statements?" You should have heard me answer, "Sir, do you not know that Mr. Brown is the author of the 'Grammar of Grammars,' a book nearly as large as the Dictionary, and costing $6?" That crushed Mr. Pinneo, and he never troubled me again. Mr. Quack-and-bosh, whose bosh may be original, but whose quack is the echo of Murray, plus the Latin Grammar, came next; but though a somewhat skillful rhetorician, I listened not to him. Then came Clark, whose sausage is as doubtful as the Greene hash of our boarding-school days. Him I held over the fire of hostile criticism, until I scorched his pin-feathers, and left him done quite Brown. Others came and went, and doubts of Brown began to trouble me.

I resolved to go to him, to state my case, and hear his defense. I was just twenty then, and you know how wise a youth of twenty is; how much he knows; and how competent he is to judge a man like Brown. I went to Brown—I laid the case before him; I implored him to clear himself from these charges of inconsistency and error. Did he defend himself? No, sir. Said he: "If my grammar suits you not, then go and do as your multitude of counselors have done. Make one of your own, and see if *it* will suit you when you get it done." The idea pleased me. I would go and purchase every kind of grammar that I could find; and, out of them I would bring peace to the troubled English language.

My plan was this. I would cut out of every book the parts wherein they differed, and on the firm foundation that remained, I would build a grammar that would stand. Need I tell you the result? Page after page, leaf after leaf, I tore away, till nothing remained except the covers and fly leaves; and as the last expiring flame of the last leaf died away, my love for Brown had burned to ashes.

It was then I met R. G. White. How quickly he dispersed the clouds that so befogged me, with the light shed through the pages of the *Galaxy*. Like kerosene poured on the troubled waters, fell his words upon my soul. He said we had no gender. Glorious news! Away! ye masculines and feminines, ye neuters and ye common people. "No

hard cases," said he, "shall hereafter trouble you. The potential mood shall lose its power; the infinitive mood shall have an end; the subjunctive mood shall no more be doubtful. Articles shall disappear, and participles shall be divided." Hurrah! No more Grammars! No more weariness of body and vexation of spirit; but English pure and undefiled. So mote it be.

My mind is now at rest on the subject of grammars. I can look coolly and serenely on the various text-books that frown upon me from the book-store shelves. I have almost forgiven the State Board of Examination for their atrocious questions on grammar, and for the absurd and untruthful statement that "any authority, ancient, modern, or antediluvian," would be taken. (My certificate shows better than that.) But though I have forgiven Brown, and dropped him from the list of my acquaintances, I could not but feel relieved at the news of his death.

Yet, still, a doubt remains, and Mr. Ed'tor, I want to know—IS GOOLD BROWN DEAD?

MRS. HOPKINS' CLASS.

BY AGNES M. MANNING.

[Principal Lincoln Primary School, San Francisco.]

Solomon of old said there was nothing new under the sun. He was mistaken. He died, however, far too many ages ago to discover it. It originated in a new journal called the *Primary Teacher*, and its name is "A Year's Experiment in Teaching," by Louisa P. Hopkins.

We Californians have been accused of a good deal of braggadocio. We have prided ourselves on leading the older States in many things. We have not hesitated to claim the most humorous writers, the most eccentric poets, the best artists, not to speak of our wonderful bonanzas, our mushroom millionaires, mammoth vegetables, and great natural curiosities! We *had*, too, the best magazine, and we claim that there is much in even having had the best of anything. In school manuals we have simply defied all competition. To use a common phrase, often sarcastically applied to women—they have been "fearfully and wonderfully made." We know nothing in all literature that could equal them, except, perhaps, this remarkable record of a most remarkable class. If fate had drifted Mrs. Louisa P. Hopkins west of the Rocky Mountains, the query is—Would she, too, have entered the lists, and written a manual?

There are some who may be incredulous enough to hint that they would like to see the examination papers of these scholastic infants. The writer of this article does not doubt but that they did all the author asserts—probably more. Trust me, the learned pig knows that his claims are genuine. Look at the trained animals at a first-class circus and menagerie: you can read in their melancholy eyes their faith in the teaching they have received, and knowledge of its price. Even the canary, who tells your fortune on the street-corner for ten cents, does it with a sad dignity, and a profound belief in its own capacity.

Come with me into one of our primary schools, and I will show you a hero of seven or eight years, marching proudly home at the end of an examination with a paper as long as himself, and shouting to his neighbors that he has "ninety-nine per cent." Flushed and nervous, his little brain unduly excited, his small system strained from prolonged effort, his pulse beating at fever heat, his ambition aroused, his vanity stimulated, he rushes to his bewildered mother, flourishing the cabalistic MS. in her face. The poor woman understands nothing of her son's hieroglyphics. The electric battery of the "Grube System" was unknown to her benighted school

experience. But she reads his young triumph in his face, and where is the mother's heart for which that is not enough! She has visions at once of her darling's future name and fame, and henceforth no teacher will be without her aid in keeping up his system of *cram*. Let us follow her bright boy through a few years, where weekly, monthly, quarterly, yearly, he is subject to the same exhausting process. He enters a high school mentally worn out. The most gifted instructors can only waken momentarily the *blasé* mind. His brain, with its fine God-given fibers of intellect has grown unresponsive and dull. Before him lie the wide fields of human knowledge, the great paths that sturdy feet have trampled plain; but he has neither strength or energy for the toil. He sinks by the wayside, and is swept out by the besom of time into the numerous heaps of failures and mediocrity.

Thackeray once said that he was obliged to raise the rank of his principal characters in his book to please a worldly publisher, who understood exactly the novel reading public. That is how the good, genial, noble-hearted old colonel attained his rank. I think you will agree with me that he ought to have been the President. Was there, I wonder, any such pressure brought to bear on Mrs. Hopkins' class of girls? Was the average age *lowered* a couple of years or so, after the harmless manner of placing heroines as youthful as possible? We know that even the resolute eldest sister at Hawarth could not carry her point on this question. She told her sisters they were wrong—morally wrong—in painting their woman beautiful. She had looked afar with clear eyes, and saw that the majority of the mothers of our race are very plain. So she drew Jane Eyre poor, and obscure, plain and little, but she dares not place her beyond eighteen.

In the famous "Correspondence with a Child," how frank and fresh seems the expression of Bettine, writing in a clear star-filled night, under a German summer sky: "In all the world there is but one to me, and that is thee, Goethe." Are we not furious with the prying critic who found out that the "child" that wrote this letter was *thirty-seven*?

In all time there has been this mischievous *penchant* for exaggerating the intellectual work of the young, and setting it up for a standard. The illiterate are always ready to believe in the marvels of inspiration. The ignorant have no conception of mental growth.

Fanny Burney writing her first book at sixteen was remarkable, but gruff old Dr. Johnson, who hated all pretense, and believed in Fanny, knew she was nearly twenty-eight. Then, there was Jane Austin, drawing in subtile lines a Mrs. Bennet—that worthy prototype of Mrs. Tulliver—or a Mr. Collins when she was not out of her teens, and afflicted with a most interesting "decline." Alas! for the sticklers for youthful prodigies, that time should prove she was thirty-four, and did not die of her "decline" until past forty!

It is a little singular that the great minds we have had have always loudly denied the ability to write, or paint, or chisel, or sing without the very labor mediocrity despises as useless. In all biography we have no instance of either poet, or philosopher, or scientist who understood the grammar of a language—like Mrs. Hopkins' little girls—without taking the trouble of studying it. Jeremy Taylor, however, once met a young lady that largely resembled them, and he sketched her in such graphic lines that she has become immortal.

On the contrary, the savants, poets, philosophers, and artists utterly repudiate any knowledge of an easy way to the breezy uplands of a true education. There is hardly one of them that believe an iota of what the world calls their Genius and Inspiration. When, however, you come

to the glib expounders of cramming and pet systems, you are introduced to a marvelous class of little misses in white muslins and pink-and-white sashes, who can tell you all that Mr. Higginson knows—and more—of the Mound Builders. Or the scene changes, and Mr. Squeers appears, bland, self-reliant, triumphant, believing alike in the wonders of oral instruction, and a school spoon.

SAYING WHAT WE MEAN.

BY E. KNOWLTON.

[San Francisco Boys' High School.]

Saying what we mean is fast becoming one of the "lost arts." Meaning what we say long since became so. He who tries either of them puts himself sadly out of fashion, or falls far behind the times. Not saying what we mean sprung from and thrives upon mental carelessness. It shows either poor brains or poorer training. Not meaning what we say, begins in and grows greater by moral negligence. It is one of the signs of a heart already bad or growing worse.

To say exactly what one means—no more—no less and nothing else—and to do it all the time, stands high among the foremost things which nine of every ten can't do. And the tenth fails nine times where he succeeds once. Hardly one in a score, at his first attempt, speaks his meaning clearly—speaks it exactly, speaks it so clearly and exactly that the heedful hearer cannot fail to take just the very sense he meant.

Teachers fail in this—fail grievously, fail habitually, and their failures call forth, increase and perpetuate the natural aptitude of imitative pupils. Even teachers of grammar, of composition, of rhetoric, after all the supposed teaching of their teacher, after all their own presumed self-teaching, seldom learn to detect habitual ambiguity in the speech of others, or to avoid the constant danger of it in their own.

They often make their utterance as vague, ambiguous or equivocal as poor Gyges found that of the famous oracle, whose double-meaning answer led him to his ruin. Capable of seeming "all things to all men" they become nothing certain to any.

Grammar teaches—or tries to teach—that a simple sentence contains, expresses, or conveys one single, distinct thought, as a strictly private carriage conveys its owner only. That is the ideal sentence of the books, the theoretical, "should-be" sentence according to the standard definition. The real sentence, the actual, common one, especially the spoken sentence, is, rather, an omnibus, crowded with various meanings; or a street-car, taking on one signification at one corner, another at the next, and seldom carrying any one throughout the entire trip. For proof of this take common speech—ordinary descriptions, attempted directions, testimony in courts, the earlier performances of unpracticed reporters, not to mention the idle talk of idle men, and the worse than senseless gossip of the gadding female. The truth of it few will deny, except, indeed, the self-same parties whom this very negligence has bound so firmly in unsuspected servitude to unconscious habit that they neither detect this fault in others nor suspect it in themselves. Indeed this general unconsciousness of the habit is one of the worst things about it. It is the first, if not the greatest obstacle in the way of its removal. The doctor has hard work to get medicine into the patient who insists that there's nothing the matter with him.

Whence comes this? What makes it so? Careless thinking. The mouth follows the mind. The tongue is servant of the thought. The common excuse—"I know but I can't say it," is as untrue as it is common. No man ever knew, intel-

lectually, what he could not express. He may *feel*, that is, he may know by sensation, that which he cannot express, but he cannot know, intellectually, anything which he cannot speak. We think *words* and we speak words. The mind cannot think without words, nor can it think any word which the mouth cannot speak, or the hand cannot write. Clear as this is to all clear thinkers, it excites contradiction from many who think themselves thinkers, and more, perhaps, who have thought but little about thinking. Let any doubter or disputer, however, try it, and when he succeeds in thinking a word which he can neither speak nor write, we may, possibly, yield—when he tells us what the word is!

So we say that careless speaking, inexact speaking, ambiguous or indefinite speaking or writing is born of, or grows out of, careless, inexact, ambiguous or indefinite thinking. "As a man *thinketh* so *is* he," says a somewhat unfashionable "Old Book," and "as a man thinketh so speaks he," is the conclusion which reason reaches by the brief and simple line of thought, or rather, act of self-observation or self-perception just indicated.

Since thought, then, is the fountain, the beginning, the origin of speech, we who seek to make speech clear must first inquire how we may make thought clear.

Thought starts from, begins with, begins in, or begins by, seeing, or feeling, taking in the likeness of, the image of, or the sign of whatever may present itself to any one of our so-called senses, or power of taking in, or to which, or upon which the will may, consciously, or even unconsciously, direct or employ any of these powers of seeing, or perceiving likenesses, images, or signs, or gaining "percepts," as some like to call them. Thus our thinking depends upon our seeing. Or, to dress the idea up in its scientific toggery, our *per*ception governs our *con*ception, and our conception governs our expression. Hence it all comes down to this: our expression depends upon our perception. He who *sees* clearly *speaks* clearly. A muddled mouth shows a muddled mind.

Now we are ready to speak of the cure. In fact, to find the cause of any evil is to find the cure, or, at least, the way to work towards the cure.

The cure of careless, inaccurate speaking is careful, exact, clear *seeing*. We must teach and train ourselves and our pupils to see, to notice, to observe, to discern, to discriminate. It will never do to let our pupils, or *ourselves*—who, often prove, by the way, our own most unmanageable pupils—mix botany and zoology, as did the half-blind one of old, who saw "men as trees walking." We must make ourselves see carefully, see exactly, see minutely—exactly note, and accurately express unlikenesses, likenesses, and samenesses. We and they, together, must teach and train ourselves and each other to see and know not only *that* one thing is not another, but *why* it is not. We must make them and ourselves not only *give* a "reason for the faith that is in us," but *know* that reason by our own power of knowing—by finding it out for ourselves. More of true education, more of the real "drawing-out" that we are forever talking about, but seldom practising, we may get from this than from any other single habit.

And the one study, of all possible studies, best calculated to cultivate, nay, to *compel*, the use, and so the growth, of this power to see, is Natural History. Any branch of it will do: botany, zoology, entomology, mineralogy, geology, or any sub-division of any of these. Better begin with what seems the simplest, or that whose object and means lie nearest. Begin humbly. Observe exactly and repeatedly. Then try to say what you see. If you *can't*, that's a sign that you haven't clearly seen yet, and means that you must see *again*, and keep seeing until you *can* say what you see, so

clearly that the hearer or reader can see what you say. That's what Hugh Miller did, that's what John Tyndal does, and who among all the professional rhetoricians, who write so much *about* writing, can equal either of these in his clear and simple way of saying what he sees, what he knows, what he means?

And when we have quite exhausted the study of this material world beneath, around, and above us; when we have learned all that is to be learned of even the smallest department of the least of these sciences; when we are sure that we fully know even the smallest of these manifold mysteries of the natural world, we may, possibly, be partially prepared to begin the study of those super-natural mysteries, concerning which so many thousands of ignorant, conceited and presumptuous dabblers in unnatural theology now dare to dogmatize, only to prove afresh, that

"Fools rush in where angels fear to tread."

TRAINING IN THE USE OF ENGLISH.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

PAPER NO. I.

My purpose, in the present article, is to indicate some of the methods by which pupils may be enabled to express their thoughts correctly, clearly, and readily. This is a very different thing from the study of English grammar. Indeed, I think when exercises in the use of English shall take the place of the formal and useless study of treatises on English grammar in our common schools, a much-needed reform will be effected in them. In these schools the simple and practical parts of the grammar should be taught orally, the other parts should be gathered from practice in using the language. "As grammar was made after language, so ought it to be taught after language."

Every person who has occasion to use the tongue or the pen is the more competent and the more comfortable for having the power to express himself with accuracy and facility. How many times may a man be unexpectedly called upon to put his views on paper, to draw up a resolution or agreement, to state his recollection of events or of conversations, or to answer a note requesting information upon any topic. The man who can do this most truly and promptly, saves time for himself and others, and his superiority is at once acknowledged. The same is true of oral expression. In the social circle, we have all met those from whose lips the words flowed with a captivating ease and grace. In business, men must say exactly what they mean—neither more nor less—and he who can do this the most clearly and promptly is, other things being equal, the best business man. It is the testimony of lawyers that the number of witnesses is few who can give a lucid and connected account of what occurred before their own eyes. It is apt to be confused and badly expressed.

Every teacher can mention instances of pupils who answer that they understand the matter, but cannot find the right words to convey their meaning. Some appear to be wofully deficient in language. The remedy for this inability to express one's ideas is *practice*. The man who has occasion to write a letter only once a year will be very slow and awkward in the performance of that work; while a reporter, or editor of a newspaper, who is compelled to keep his pen going night and day, writes with a facility and rapidity that appears to the uninitiated little less than miraculous. No particular course can be laid down for acquiring this useful and graceful accomplishment. I propose to advert to some methods by which the end desired may be approached, if it is not reached.

In the first place, as has been often said,

the teacher must be a model in the correct use of language. We all know that some pupils will, notwithstanding all the pains taken with them, repeatedly violate some of the simplest rules of grammar, on account of the bad English they hear at home. So much the more careful must the teacher be that his language is unexceptionable. The intonations of his voice should be varied and pleasant, his articulation distinct, his pronunciation correct, his use of the Queen's English, according to the best standards. "As is the teacher, so will the school be," is as true a maxim in this case as in many others.

Wilson has some very good remarks "upon the correction of bad habits of speech." He says: "We once had charge of a large school of boys, nearly all of whom had formed such habits of speech that, in their ordinary conversation and in recitations, there was an almost constant violation of grammar and good usage; and although their faulty expressions were often corrected, and they knew them when pointed out, yet inveterate habit ruled in spite of all our efforts. We then supplied every pupil with a pocket blank-book and pencil, and required him to write down every wrong (ungrammatical) expression which he detected himself in using, or which he heard from his associates; and a few minutes daily were devoted to reading and commenting upon these expressions. In a short time the most obvious faults disappeared from the school-room and playgrounds. We were satisfied that one month's time of this kind of *training* was worth more to our youthful pupils in acquiring the *art* of speaking correctly than two years devoted to studying the rules and principles of grammar."

As an early exercise, suitable for primary schools, read sentences selected for the beauty of the thought, or for the forcible manner in which they express some noble sentiment, or convey some moral truth. They are to be suited to the capacity of the scholar, and are to be read to the whole class, beginning, of course, with short sentences, and afterward proceeding to longer and more complicated. Every pupil is told to give close attention. The sentence is then read *only once*—slowly and distinctly—and then any one in the class is called upon to repeat it.

After this plan has been tried for some time with the class, it may be varied as follows: Read a sentence to a class, requiring them to give the pith of it in their own words. In this way it may be ascertained whether they understand the sentence. This exercise trains the mind to be quick and grasping; it enables it to pierce through the burr and shell of thought and seize upon the kernel.

The familiar exercise of giving children at first a few words with which to construct a sentence; then some dozen or more words to put into a story, filling the blanks, is a pleasing and profitable one: it may be followed by reading to them a short story, and requiring them to repeat it, or to state all the material parts. When they are older, they may be called on to write down the particulars of any story related to them.

Another good method is to notify the members of a class to come prepared to tell a good, short anecdote—one, for instance, illustrating the sagacity of a dog, horse, etc. This exercise is susceptible of application to a great variety of subjects, and is very interesting to pupils.

One purpose of object lessons is to learn the right use of language. With this view, the children examine the object, and are encouraged to tell all they observe in it In this, and other similar exercises, the property in the object must be first perceived, then the name learnt. The teacher should not help the pupil to a word unless it is necessary to do so. When he finds the pupil utterly at a loss for the right word, let him call upon the class for it. If they

cannot mention it, it may then be given by himself. Do nothing for the pupil that he can do for himself. As a conclusion to the exercise, let the children write a short account of the object, describing it as accurately and minutely as possible. This method practices them in composition, and also strengthens their powers of observation.

It will be found interesting to show a class a picture, (and there are admirable ones suited to the purpose in the pictorial papers) and ask them to describe it either orally or in writing, or to relate the story which they think it tells. I have listened to good compositions from pupils who, at my request, having examined Cole's four pictures of "The Voyage of Life," described them in detail, with evident appreciation of the author's genius, stating the reasons which were probably in the artist's mind for varying, so remarkably as he has done, the scenery in the different pictures.

It will at once occur to every one that conversation with pupils is the natural method of enabling them to acquire a command of language. This course is necessarily pursued with the younger pupils, but it should be adopted to a greater extent than it is in the case of more advanced pupils. All know that the only method of conveying instruction in the schools of ancient times was by *conversation*, and we know what results were accomplished. But little respect is entertained for mere book knowledge. In order to know a thing thoroughly, we must have discussed it with men of different opinions; in this way we winnow the grain from the chaff. Hence the advantage of all societies for a mutual interchange of ideas. I fear that this obvious and natural method, not only of learning the art of talking well, but of proving the accuracy and extent of one's knowledge, is by no means practised, as much as it ought to be, in our schools, academies, or colleges. The recitation is apt to be mere routine, the teacher putting questions which the student answers, if he can, but there is seldom an animated conversation upon the subject of the lesson, A good plan is, after having examined every pupil upon the lesson assigned, to ascertain whether he has done his duty, and after being certain that the lesson is understood, to put a variety of questions upon the lesson and upon topics naturally arising out of it, to mention analogous instances, and inquire what explanation can be given, or comment made upon them, to state objections, and ask how they can be met. The object is to wake up the pupils, to draw them out, to get them into a discussion, the warmer and more earnest the better; and the silent members of the class must not be allowed to escape these interrogatories. I think that teacher stands in the true relation to his class whose pupils voluntarily and readily ask him questions.

THE CLASS IN ARITHMETIC.

BY MRS. LOUISE P. HOPKINS.

ITS FIRST INTRODUCTION TO COMPOUND NUMBERS.

MAGGIE, BERTHA, MABEL, LOUIE, CARRIE, ANNA, ALICE, GERTRUDE, LILLIE; all from eight to ten years old.

Teacher.—There sits Emmie, looking at her ivy. Beg pardon, Emmie; but where did you get that dress?

Emmie.—My Auntie bought it when we were in London: it is a Scotch dress.

Teacher.—So I thought. It is very pretty; did she pay for it in dollars and cents?

Emmie.—No 'm; it cost eighteen shillings in English money.

Bertha.—O, I know about English money! Clara bought us a great many things in London, and she told me all about it.

Maggie.—I should like to go shopping there—how funny!

Teacher.—Well, let's go this morning.

Play we are in London. Have you any money in your pockets? I will say your fathers have given you each £3 to spend, but I am glad for your convenience it isn't all in pound-notes, but a two-pound-note, eighteen shilling-pieces, and twenty-four pence, one of which is worth nearly two cents.

Mabel.—Why, is that the same as three pounds?

Teacher.—Yes, if I reckoned rightly. It takes twelve pence to make a shilling, and twenty shillings to make a pound. Twenty-four pence would then be two shillings, and those, added to eighteen shillings, make twenty shillings—just the one pound we need to make, with the two-pound note, three pounds. Now we will buy some pretty things for our friends this morning. Nella, do you remember the exhibit of English pottery at the Centennial? "Yes"; well, as it is the fashion to buy such things, let us go into this large ware-house of "James Stiff & Sons" and choose our purchases. You may say, in turn, what you will buy.

Mabel.—I want a Majolica *tête-à-tête* set for my mother, on which I can take up her supper when she is sick.

Teacher.—Very well; I write that down here, while those who know may describe the Majolica ware. [The description is quite full and plain from two or three.] I will say that the price of it is £1 12s.

Bertha.—I will take two terra-cotta vases.

Teacher.—Describe them, Bertha: you say you have two or three terra-cotta ornaments at home. I will put your purchase down under Mabel's; it comes to 12s.

Louie.—I would like a few handsome tiles for Aunty May.

Teacher.—Yes, four Staffordshire tiles come to 8s. [Alice, Gertrude, and Lillie don't know what they want, and as they are younger, the teacher chooses for them: A pretty tea-pot for Alice's mother, called a Rockingham Teapot, for which she must pay 10s.; a Parian statuette of Cupid for Gertrude's purchase, worth £1 6s.; and a beautiful platter of Lambeth pottery, worth £1 18s., for Lillie to give her papa.]

Anna.—Oh! can I buy some of those lovely little Majolica butter-dishes? I know they cost $4 a dozen here.

Teacher.—Yes, indeed; here are some like fern-leaves, and some like shells—they are only 10s. a dozen.

Anna.—Then I want a table-ornament, too, in that flowered-china, or that with birds on it.

Teacher.—We will put it down: Butter-dishes, 10s.; table-ornament in Faience ware, £1 12s.

Maggie.—What shall I have? I can't think.

Bertha.—O, Maggie! you and Carrie get some fruit medallions for your mother to hang in the dining-room. I have seen them, they are as nice as pictures.

Teacher.—Very well; Carrie and Maggie get three medallions each for £2 a half-dozen—you will have to divide the expense afterward. Maggie may pay it now. I will buy two dozen pretty cups for the scholars to keep on their tables; the price is £1 per dozen, how much is that apiece?

Anna.—Well I know what they would cost apiece if they were a dollar a dozen, but—

Maggie.—Well, can't we divide a pound by twelve?

Teacher.—Of course; what does the pound make twenty of?

Several.—O, shillings! change it to shillings.

Bertha.—Twenty shillings divided by twelve is one shilling and eight over.

Teacher.—Now change the eight shillings left into pence, and divide that by twelve. In one shilling there are twelve pence, so in eight shillings there will be—

All.—Ninety-six pence.

Maggie.—And twelve will go in ninety-six, eight times.

Bertha.—It will be one shilling and eight pence.

Teacher.—What will?

All.—One of the cups.

Teacher—Do you understand, Carrie?

Carrie,—I sort of half do and half don't.

Teacher.—Pretty soon you shall be sure, but attend now to this. We will find out how large our bill is at Messrs. Stiffs' store:

		£	s.
1	Majolica *tête-à-tête* set for Mabel,	1	12
2	Terra-cotta Vases for Bertha,		12
4	Staffordshire Tiles for Louie,		8
1	Rockingham Teapot for Alice,		10
1	Parian Statuette for Gertrude,	1	6
1	Lambeth Platter for Lillie,	1	18
1	dozen Majolica Butters for Anna,		10
1	Table-ornament, Faience, for Anna,	1	12
6	Medallions Lambeth Pottery for Maggie and Carrie,	2	0
2	dozen Cups for the Teacher,	2	0

Bertha.—I admire bills. My mamma always takes me shopping with her now, to reckon quickly and find what change she ought to get.

Teacher.—Bertha and Maggie may add these pounds and shillings on the board, the rest on their slates. Alice, Gertrude, and Carrie, come close around me and let me help you—come, too, if you want to, Lillie. [After five minutes' work, all attend to the board.]

Carrie.—Maggie's is added one way and Bertha's the other; Bertha's is like ours, so Maggie's is wrong.

Maggie.—No, my answer is just the same, only I added the pounds first, and Bertha the shillings. Is mine wrong, Mrs. ———?

Teacher.—No, Maggie; but it is usual and easier to add the smaller kinds first—just as you add the units before you do the tens. Well, you add the shillings: it makes—

All.—Eighty-eight shillings.

Teacher.—And if every twenty shillings is a pound, how many pounds are here?

All.—Four pounds and eight shillings.

Teacher.—And what shall we do with the pounds, Mabel?

Mabel.—Add them to the pounds, I should think.

Bertha.—Why, of course you do, and it makes twelve pounds.

Teacher.—Yes, we have spent all together £12 8s. Now we will find out how much change we should each have. Mabel had £3, and spent £1 12s.; she may find out, at the board, what she has left. Bertha spent but 12s. of her's, Louie only 8s.; they may work their's out too.

Mabel.—Why, I don't know how to begin.

Teacher.—See how I write it down:

	£2 20s.
(Isn't £2 20s. the same as £3?)	1 12

Mabel.—Now I see. I shall have £1 8s. left. O, goody! I can buy some more things.

Teacher.—We will go into a lace and dry-goods store, another day, so you must be prepared at the next lesson to show what you wish to buy there.

Bertha.—I have £2 8s. left. I changed one of my £3 to shillings, and took my 12s. from it, so of course I had £2 and 8s. left.

Teacher.—Mabel, you may go show Carrie how to find what she will have left; Bertha may show Alice, and Maggie may show any one else—Gertrude, if she will. [After all is clear in adding and subtracting, the teacher gives them the table of English money, which she has written on the blackboard; takes them through the process of reduction and multiplication, which she finds them quite ready to suggest for themselves, step by step, and finally points out the dozen or half-dozen examples in English money — scattered through many pages of the Arithmetic—for them to work out before the next lesson, telling them, however, to be sure not

to read over any thing in the book about it, and particularly no rules.]

Bertha.—Are French money, and German money, and all those in the Arithmetic?

Teacher.—No, only English money; it is not a part of Arithmetic—only one of the ways of using arithmetic in trade. I don't know why they put no other kind of money in the book for you to work upon.

Louie.—Well, I didn't care about knowing it, for I never shall buy any thing in England—they were so horrid in the Revolutionary War!

Teacher.—The half-hour is over. You have learned quite a good deal. They have some funny names for it in the book.

Carrie.—Please tell us what they are.

Teacher—Table of English Money, Reduction Ascending, Reduction Descending, Addition of Denominate Numbers; also, Subtraction, Multiplication, and Division of Denominate Numbers. [A shout of laughter.]

After this lesson, which was full of interest and conversation, of which only the outline is reported, the class were exercised during subsequent lessons in making purchases, in inventing and working out examples, until every member of the class was quite at home in the different processes with English money, since which they find no difficulty in applying the principles to any of the tables of weights and measures, although it is not the intention of the teacher to keep them long upon those standards which it is to be hoped will soon become obsolete, but to proceed at once to the Metric System, which requires but a lesson or two, as it is a decimal system, and its terminology is so interesting. The class is warned off from the rules, and anything in the book except the examples, until the time comes for using the rules as a summary of our discoveries.

The Royal Library of Sweden, containing 200,000 volumes, is just completed.

Use of Tobacco.

Much has been said about the use of tobacco. How often we hear the exclamation, "What a filthy, disgusting habit!" but how few people realize its effects upon the system. This habit has taken so strong a hold upon the rising generation that it is hardly possible to pass a street corner without seeing a small army of our youths engaged in puffing away at cigars, and watering the side-walk with the saliva which is absolutely necessary for the digestion of their food.

The human race cannot help degenerating if our boys, instead of allowing themselves to develop into well-formed, noble specimens of manhood, persist in checking their natural growth by the continuous use of this vile weed. The blood is the life-giving fluid. If impregnated with this poisonous matter, instead of carrying health and vigor to every organ, it only weakens and destroys. The poison is slow but sure.

Fathers and mothers, watch your boys. Guard them from this danger. Teach them as soon as they can understand, and impress upon them by *repeated* teaching, the evil effects of this pernicious practice. "An ounce of prevention is better than a pound of cure." A bad habit is easily formed, but more than ordinary moral force is necessary to break it.

Teachers, never lose an opportunity of presenting this subject in its true light to your pupils. It is of more importance that a child should know how to take care of his system than to be able to solve a problem in arithmetic. Tell them that tobacco and liquor go hand in hand; that when the stomach becomes accustomed to the *one* stimulus it seeks a stronger, and then recourse is had to "the bottle." Let fathers cease to smoke and chew; let mothers banish wine and pastry from their tables, and then, and not till then, may we hope that the future generation will be a race of healthy men and women, with physical frames and mental power to enable them to act well their part in the "great battle of life."

K. M.

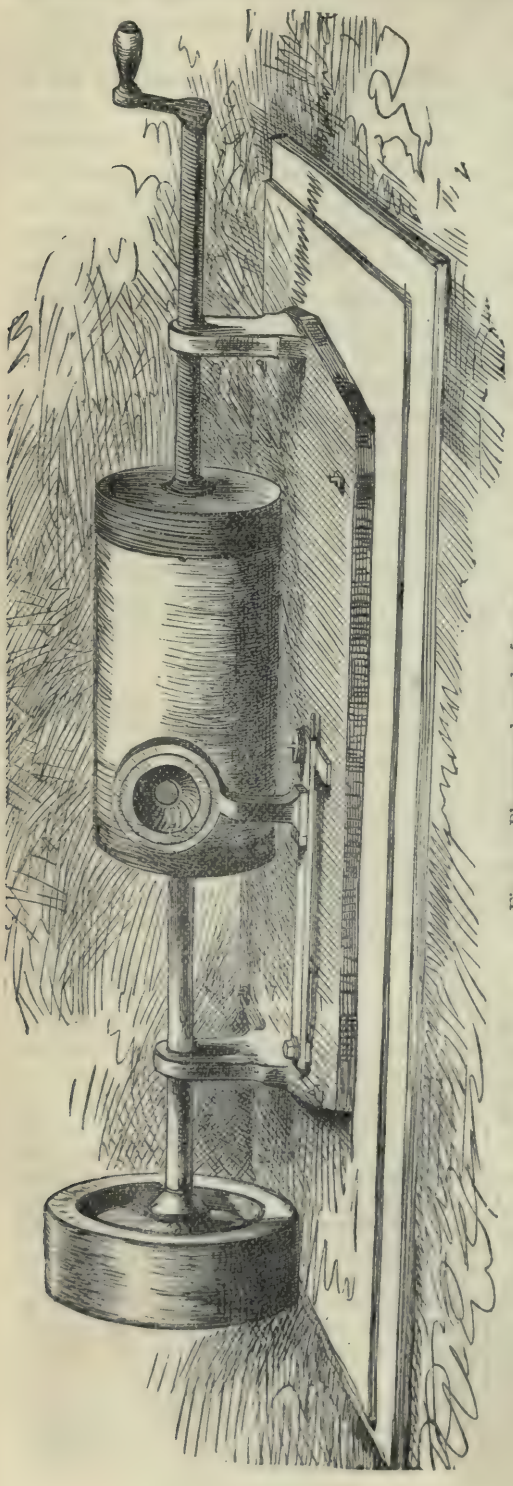


Fig. 1.—Phonograph ready for use.

THE PHONOGRAPH.

The wonders of the telephone have scarcely become known, and its capabilities appreciated, when a far simpler and yet greater marvel makes its appearance. It would almost appear as if it were reserved for our day to explore the most hidden recesses of Nature's domains; to wrest from her long too coy but now quite willing arms the choicest treasures of her affluence. Judging by the past ten years, no man can tell what the future may not bring forth. The threads of grand discoveries hang round about us. It needs but patient study, close observation, and the exercise of careful reasoning powers to unravel every skein, and stand on the threshold of a future to which the wildest phantasies of poet or painter have done but scant justice.

At the present rate of discovery and invention, it will not take many decades to realize Bulwer's COMING RACE on this upper world of ours.

The following article, descriptive of the Phonograph, is from *Harper's Weekly*, preeminently the journal of civilization in America.—[ED. JOURNAL.

The telephone, which created such a sensation a short time ago by demonstrating the possibility of transmitting vocal sounds by telegraph, is now eclipsed by a new wonder called the phonograph. This little instrument records the utterance of the human voice, and like a faithless confidante repeats every secret confided to it whenever requested to do so. It will talk, sing, whistle, cough, sneeze, or perform any other acoustic feat. With charming impartiality it will express itself in the divine strains of a lyric goddess, or use the startling vernacular of a street Arab.

Prepared for an elaborate system of weights, pulleys, levers, wheels, bands, such as abounded in the case of

Barnum's talking machine, whose utterances, by-the-way, were confined to some

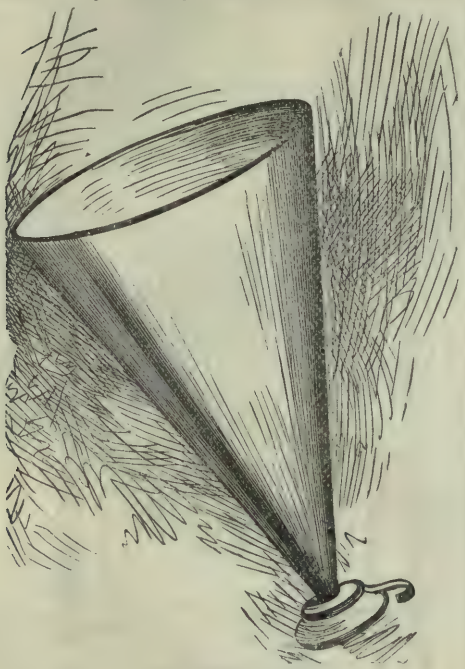


FIG. 2.—Funnel for increasing sound.

half-dozen inarticulate sounds that no man living could understand, it is rather startling to find in the famous phonograph a simple apparatus, which, but for the absence of more than one cylinder, might be a modern fluting machine. This single cylinder of hollow brass is mounted upon a shaft, at one end of which is a crank for turning it, and at the other a balance-wheel, the whole being supported by two iron uprights. (See Fig. 1.) In front of the cylinder is a movable bar or arm, which supports a mouth-piece of gutta-percha, on the under side of which is a disk of thin metal, such as is used for taking tin-types. Against the center of the lower side of this



FIG. 3.—Under side of mouth-piece.

disk (see Fig. 3) a fine steel point is held by a spring attached to the rim of the

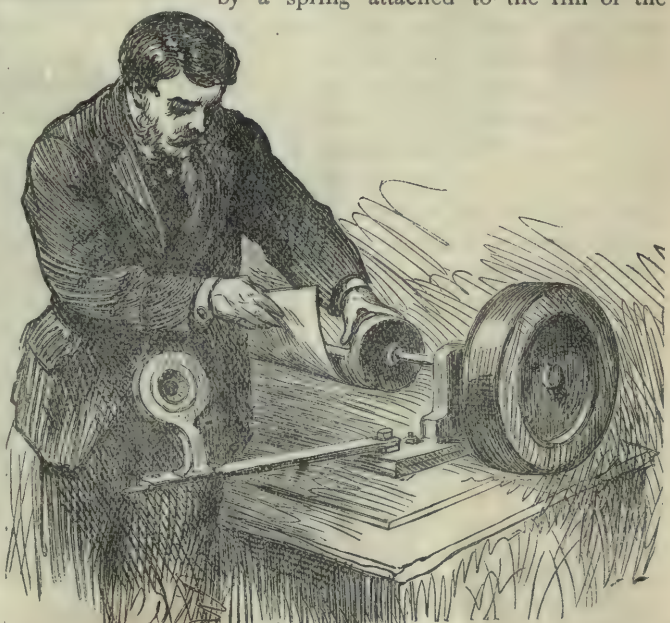
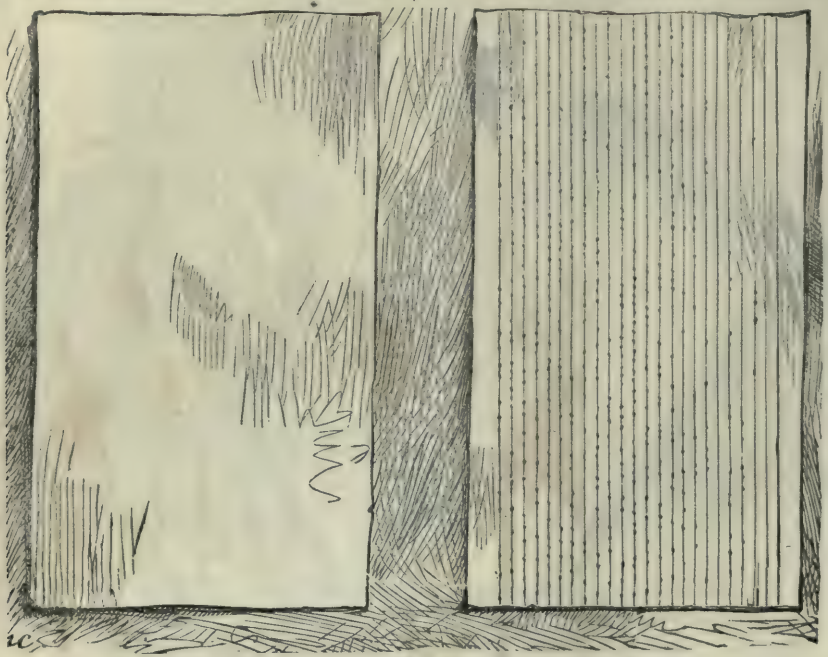


FIG. 4.—Placing tin foil on cylinder.

mouth-piece. An India-rubber cushion between the point and the disk controls the vibration of the spring. The cylinder is covered with a fine spiral groove running continuously from end to end. In using the phonograph the first operation is to wrap a sheet of tin-foil closely around the cylinder. (See Fig. 4.) The mouth-piece is then adjusted against the left-hand end of the cylinder so closely that the vibration of the voice on the disk will cause the point to press the tin-foil into the groove, making minute indentations resembling, on a very small scale, the characters of the Morse telegraph, as in figure 5, which represents the tin-foil before and after the indentations are made. The cylinder is moved from right to left by the screw crank, so nicely adjusted that the steel point is always against the center of the spiral groove. While turning the crank the operator talks into the mouth-piece in a voice slightly elevated above the ordinary tone of conversation. (Fig. 6.) Every vibration of his voice is



Tin foil before use. Fig. 5. Tin foil after use.



Fig. 6.—Talking to the Phonograph.

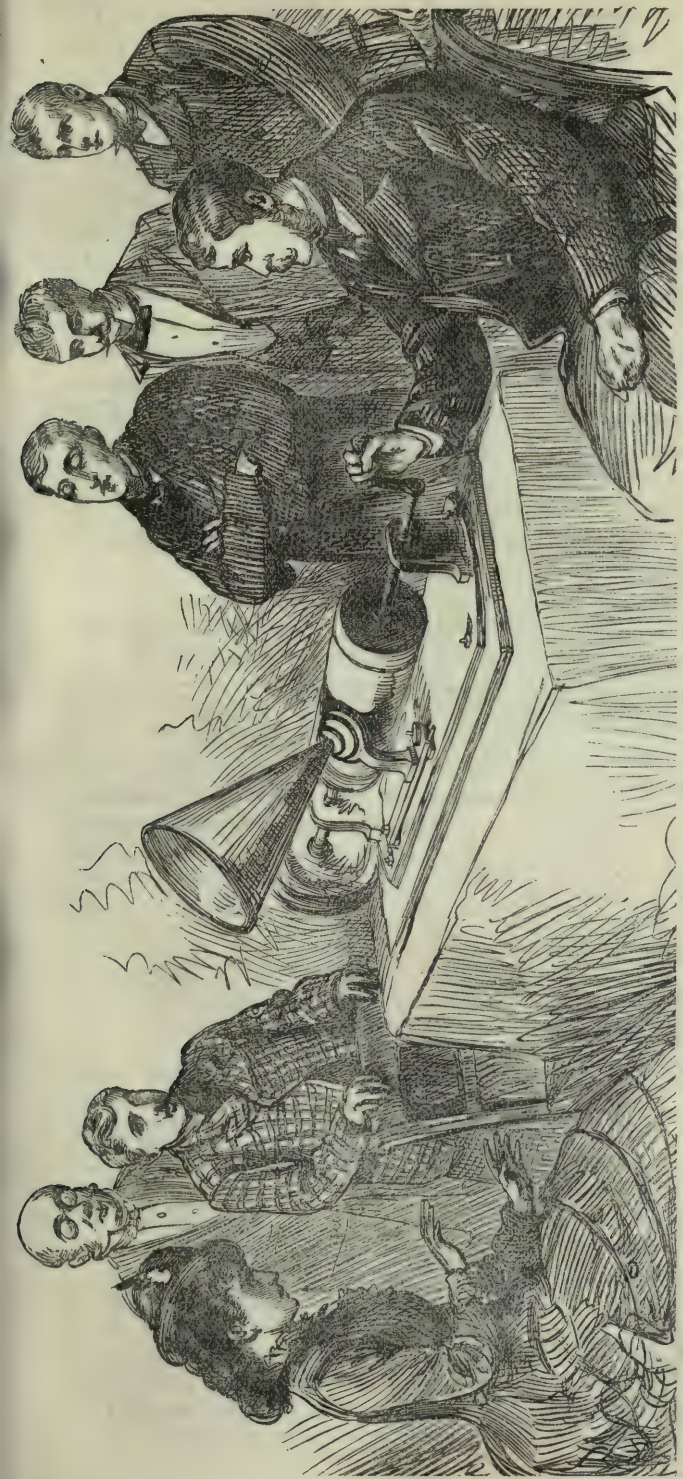


FIG. 7.—Reproducing Speech.

faithfully recorded on the tin-foil by the steel point, the cylinder making about one revolution to a word.

It remains *to obtain from these impressions the aërial vibrations which made them.* Nothing is simpler. The plate with its point is moved away from the cylinder by pulling toward you a lever. Then the motion of the cylinder is reversed till you have brought opposite to the point the beginning of the series of impressions which it has made on the foil. Now bring the point up to the cylinder; place against the vulcanite plate a large cone or funnel of paper or tin to re-enforce the sounds, and then steadily turn the crank. The elevations and depressions which have been made by the point now pass under this point, and in so doing they cause it and the thin iron plate to make over again the precise vibrations which animated them when they made these impressions under the action of the voice. The consequence of this is, that the iron plate gives out the vibrations which previously fell upon it, and it *talks back to you what you said to it.* (Fig. 7.)

Thus the disk is either a tympanum or diaphragm, as the case may be, the first when it listens, and the second when it talks. Herein the phonograph seems actually to have got

ahead of that other marvelous construction, the human body. In our anatomical economy the contrivances by which we are enabled to hear and talk are not only separate and distinct, but are also much more complicated than the method by which the phonograph accomplishes the same results.

While comparing this remarkable machine to the race whose characteristic attribute it has stolen, (it is, we believe, habitually asserted by people who have no means of knowing anything whatever about the matter, that man is the only animal that talks) it may not be unfitting to allude to the admirable example it sets many garrulous and wearisome individuals. The phonograph never speaks until it has first been spoken to. Herein it also offers a worthy admonition to many ambitious but inexperienced writers. It has no original ideas to advance, or else is possessed of that spirit of modesty which precludes the possibility of its annoying the public with unripe fancies and crude speculations. The phonograph only consents to astonish the world at the instance of some dominant and controlling mind. When it is about to exhibit itself, an operator must be on hand to put it through its paces.

As yet the phonograph is in its infancy. Its discovery was the result of an accident, and so far but little idea can be formed of the development of which it is susceptible. The gentleman who has the honor of being its inventor is Professor Thomas A. Edison, the famous electrician, who, in experimenting with the telephone, happened to notice the manner in which the disks of that instrument vibrated in accordance with the breath used in speaking. Believing these vibrations could be recorded so as to be reproduced, he set to work to manufacture a machine for the purpose, and the result is the phonograph. In a short time we shall, no doubt, have the curious little contrivance worked up to its highest perfection. And then, possibly, there will follow a revolution in all departments of public singing and speaking. There is no reason why we should not have all the great men of the age, as well as all the brilliant singers and actresses, taken possession of and driven off the course by the phonograph. Let them sing or speak once in any place, their words and tones will be captured by the phonograph. The tin-foil, whereon all they have said is duly recorded, will be electrotyped, and copies sold at so much a piece. We shall all waste a portion of our substance on these little instruments ; and then we have only to turn a crank, or set a kind of clock-work in motion, in order at any time to hear the great ones of the earth discourse in our own parlors.

Suggestion in Teaching Reading to a Low Eighth Grade.

A child is taught to know many words by sight long before letters have any definite meaning to him. There should always be some simple, plain idea in every short sentence he knows. After he has learned to recognize several sentences or a number of words, place a new word that he has not had at the top of a card ; for example, the word *sty*. Print a sentence below containing that word in connection with other words he has learned, and let him show you that new word. Repeat the word *sty* several times ; then, if the sentence is, the pig is in the sty, he will read it directly. Explain the meaning of the word, if he does not know it already, and finally teach him the spelling of it, pointing out the different letters that he may know them individually. He has thus in one lesson learned a new word by sight, its meaning and its spelling.

It is then a good time to teach him how to form the word with *written* letters. Never ask a child to print a letter, when *learning to write is so necessary*, and if taken up at the start is so easily accomplished. In a remarkably short time he knows the alphabet, and in nearly all cases one sound for each letter.

EDITORIAL DEPARTMENT.

What an Educational Journal can do.

In a few simple words of plain English, we propose to state to the great body of our teachers why an educational journal should be sustained by them, why it should be well sustained, why they should extend its circulation to their school patrons, and why they should frequently contribute to its pages.

First—The great masses of our people are not well informed on school affairs. They love our public school system, but they know very little of its practical workings.

The cause of this—plainly and concisely stated—is the astonishing ignorance of the greater portion of the daily press—those instructors of the people—on everything pertaining to our schools and their teachers.

In our modern society, the public policy of a State is guided mainly by the current of opinion in its large cities. How this current is created, guided, directed, or diverted, we all know! The number of ruined reputations, blighted lives, political, social, and financial wrecks too well attests the unnatural, fearful power of the press!

Yet this wonderful engine, like many another monster which modern ingenuity or modern genius has created, may be controled by the simplest means.

It is not generally known, but it is nevertheless true, that in San Francisco, the educational policy and utterance of prominent newspapers is dictated by interested parties, who have had sufficient shrewdness to make the acquaintance of editors and reporters. Or worse still, any one, who has the *entree* into the editorial rooms of one or two leading dailies, can sit down, and by writing, practically shape its educational policy.

We believe this explanation will account for many of the educational crudities and absurdities, by which a portion of the daily press does so much to injure the cause of popular education.

This, then, is one reason why an educational journal, outspoken, consistent, able, and powerful, is needed in this community.

Such a journal can point out, accurately and disinterestedly, the defects of our schools, and suggest the remedies. It can represent educational interests, and teachers as such. It can defend, intelligently and therefore more effectually, our free school system from the attacks of its foes. It can advocate such changes in our course of instruction, as are demanded by our age and clime. It can aid materially in gaining recognition for teachers as professional men, and in placing the profession of teaching in that high rank to which it is entitled.

These are but a few results to be attained by a standard, representative educational journal.

THE PACIFIC SCHOOL AND HOME JOURNAL designs to do this great work on the Pacific Coast.

Fellow teachers, it is said that every great corporation in California has its newspaper, every mining management its journal, every great commercial or material interest its subsidized publication—shall not education too have its legitimate organ?

Official Notice to County Superintendents.

The co-operation of the County Superintendents is earnestly requested to secure a general attendance of the teachers of their respective counties at the meeting of the State Educational Association, to be held in Sacramento, July 1st, 2d, and 3rd. By order of the Executive Committee, at a meeting held in San Francisco, April 20th, the Secretary was directed to notify County Superintendents of the meeting of the Association, and to suggest that a delegation of representative teachers be sent from each County Institute to the State Convention.

A general attendance of the teachers of the State is desired.

Special rates will be made with hotels, and excursion rates will probably be charged on the railroads of the State.

Any suggestions in relation to topics to be presented for the consideration of teachers, and for discussions, must be sent to the Secretary, at the office of the JOURNAL; and will be presented by him to the Executive Committee.

There will be regular daily meetings of City and County Superintendents during the session of the Association. A full attendance of Superintendents is therefore desired.

The Executive Committee desire an answer from the County Superintendents to this notice; they wish to ascertain to what extent each Superintendent can assist in the Institute; and they propose to make this Convention of especial value to the educational progress of the State.

It has been decided by the State Department of Public Instruction that County Superintendents may call their County Institutes in conjunction with this State Convention.

A. L. MANN,
President State Teachers' Association,
ALBERT LYSER, Secretary.
508 Clay Street, San Francisco.

To Correct a Mistake.

It is supposed by a great majority of the teachers of California that Prof. Charles H. Allen is a member of the State Board of Examination. That gentleman has, consequently, come in for a large share of the denunciation, so justly bestowed by many of our leading teachers, on the absurd questions in arithmetic, grammar, etc., proposed at our quarterly examinations.

We know from the best possible authority that Prof. Allen has not acted with the State Board for nearly two years past; that he has prepared no questions, and received no compensation.

We are much pleased, in justice to a gentleman who is one of the three or four of our ablest schoolmen, to make this explanation. Prof. Allen is a man invaluable in his place—at the head of the Normal School. By his yearly work at Institutes, too, he is doing much to elevate the *morale* of our teachers. We cannot spare him from this State, nor see his usefulness impaired by so injurious a report

Hundreds of warm friends throughout California will be glad to learn that whoever is responsible, Prof. Allen "has no hand," whatever, in making out questions for examinations of teachers.

School Legislation.

In addition to the amendments to the School Law, presented to our readers on another page, there was another bill which became a law, and the text of which has not yet been received. The substance, however, is to add, by appointment of the Governor, two additional members to the Board of Normal School Trustees. This law is bad; no good can possibly be accomplished by it. Its animus undoubtedly was to injure the efficiency of the school, by rendering insecure the tenure of its present able Principal.

We trust the wisdom of the Governor will defeat the designs of the scheming politicians, by whose cunning this bill was so quietly slipped through the Legislature.

No action whatever was taken on the Textbook Question. The bill to repeal the Tuttle act of 1876, was passed by the Assembly, but it was too late in the session to be acted on by the Senate. We have some suggestions to make in relation to this matter, which we shall reserve for leading editorials in future numbers of the JOURNAL.

Our readers know that we hold ourselves responsible only for the opinions expressed in the Editorial Department. We dissent decidedly from some articles frequently published by us. We are in favor of a fair presentation of both sides of every subject; and we propose to give place to any well-written communication, no matter how much at variance it may be with our own views. Fair and full discussion can do no harm to any truth—educational or otherwise. These remarks are apropos of Mr. McClelland's article in this number of the JOURNAL, which we propose to criticize fully in our next issue.

Teachers for the Constitutional Convention.

In a few months a convention will meet at the Capital to revise the State Constitution of California.

Every condition of our community is entitled to representation therein; and no class of citizens have a more intelligent interest in the welfare of the community than teachers.

None, both by reason of general culture and a proper conservatism, can better serve the best interests of our Commonwealth. None are more patriotic, or more unselfish in their devotion to the advancement of their country. No class of citizens are less identified with factions or party politics.

For these reasons we recommend the representative teachers of the State to the favorable consideration of our citizens, as worthy and reliable delegates to the Convention.

And we suggest that the male teachers of each county take immediate measures to organize and secure a due representation in that body.

We can name fifty educators, any one of whom could be of material service to the community in the capacity of law-maker. For culture, ability, and experience some of these men have no superiors and few equals. The people of California may well be congratulated if the convention is composed largely of such elements.

The Teacher as a Member of Society.

Society values man not for what he is, but for what he is to society. Teachers should bear this maxim well in mind. It is not enough for them to do their work well within the walls of the school-room. He whose round of daily work includes only the familiar path to and from school, is sure to stagnate, to grow narrow, to die out of the knowledge of the world.

As in the physical world, so in the mental —circulation is the law of healthy being. The teacher, to be an educator, a power to influence his contemporaries, must come in contact with society—must make his presence therein visible, and his absence felt.

Therefore, teachers, do not grow narrow by neglecting your social duties. See and be seen. Become acquainted with every parent in your community, as a matter of course—and with those not parents as well. Take an active and real interest in every undertaking in your community: let no public meeting or entertainment be without your presence.

Thus you will know the real opinions of mankind, and properly estimate the world, and be estimated at your real worth.

A Good Word for California Teachers.

At the close of our first year, with a large and constantly growing subscription list, we found ourselves with scarcely fifty unpaid subscriptions. A simple reminder has decreased this number to less than fifteen; and we believe that when these lines reach the eyes of our readers, there will not be half a dozen delinquents. Can our educational exchanges, generally, boast of so fortunate an experience?

We have no reason, as yet, to regret our offer to the teachers of the State, and we repeat it right here—Send us your names and Post Office address. If you have not the money, we will wait a reasonable time.

Remember our offer is *bona fide*. We prefer to have subscriptions paid in advance; but no teacher need be without the JOURNAL, because the money is just now not conveniently at hand.

Credit.

The Harper Bros. are noted the world over for the deep, unselfish interest they take in popular education. The American people collectively have often had substantial evidence of the existence of this feeling. The pen of Curtis and Eugene Lawrence, and the pencil of Nast have done powerful and successful battle against the common enemies of popular education and free government. Through the courtesy and good-will of the Harpers, we are enabled to present to the readers of the JOURNAL the finely illustrated article on "The Phonograph," in this number. Many teachers have probably seen it in the *Weekly* of March 30th; but by repub-

lication in magazine form, it is brought into more convenient shape for explanation to classes or individuals.

We give great praise to at least one San Francisco daily newspaper, *The Alta California*, for its manly and able denunciation of a set of incendiaries and demagogues, who are doing much to disgrace this Western community. The heartfelt thanks of every man and woman to whom American principles are dear and sacred, are due this paper, whose daily course does much to redeem the fair fame of modern journalism.

Our readers must not forget to read the PUBLISHERS' NOTES on Page 8. There will always be found important and interesting business announcements.

GENERAL NOTES.

QUESTION-BOX.—Amherst College has this year seen a new feature. The President during the week receives written questions, and sets apart Monday morning for answering them in the recitation rooms. The *Amherst Student* remarks that "the only wonder is that this method has never been tried before. 'Question and answer,' as a means of education, is as old as Socrates. Germany has used it for centuries in her *practicum*. The efficacy of the plan is very evident, for there is no way in which more practical knowledge can be gained, and no such pleasant way of gaining facility in the use of the mental powers as by listening to and occasionally taking part in conversation and discussion with those who are older and more experienced than ourselves. We write this to show our appreciation of the practice."

The method at Harvard is different from this. In a hall in the library there is a number of little hooks, upon one of which the questioner hangs his written question, which may be upon any subject, and which any one may answer who can. Both the question and answer must state the writer's name, or page in the librarian's book, from which, if necessary, his name may be ascertained. This affords a guarantee against improper questions. It is said to be interesting, and sometimes diverting, to look over these questions and answers, which any one is allowed to read. We thereby get an insight into the busy inner world of Harvard, so different from the calm outside, and learn something of what is swarming in the students' brains. It must be like uncovering a bee-hive. The plan is very popular with the students who, in their *Harvard Advocate*, state that it is a great help to them, and express the hope that it may never be abused by putting foolish questions, and I am told it never has been. This library hall may be called a "College Exchange," where students gather not to speculate in "Ophir" or in "California," but, we trust, to get "wisdom which is better than gold" and "understanding rather to be chosen than silver." The President of the Exchange is Solution, and not Jay Gould or any big Bonanza king.

The Amherst method is more suitable for public schools, in which, if I am not mistaken, question boxes have been sometimes tried by enterprising teachers. Would it not be well to introduce them—if not already used—into high schools and the first classes of grammar schools? Let the pupils be asked to put into the box during the week written questions upon any subjects connected with their studies, or such questions upon matters of general interest as may occur to them in reading or in conversation. They should be warned never to propose any trifling, impertinent, or improper question. If necessary, they may be required to sign their names to their questions. Let the questions be classified according to the number of departments or teachers in the school, and then let each teacher, during the first hour of Monday, in his own room, ask and an-

swer (if no one in the class can) the questions belonging to that department. The miscellaneous questions—that is, any which cannot be classified, or a selection from them—might be made the subject of a general exercise. This plan for the scholars is exactly like that valuable feature for teachers in your journal—the "Queries and Solutions."

It seems to me that the "question-box" would greatly interest both teachers and scholars, and that much good would follow from its use. GEORGE W. MINNS.

MEETING OF THE EXECUTIVE COMMITTEE OF THE STATE EDUCATIONAL ASSOCIATION.

Pursuant to the call of the President for 1878, Superintendent A. L. Mann, of San Francisco, the Executive Committee met in the rooms of the San Francisco Board of Education, Saturday, April 20th. There were present Mrs. Jeanne C. Carr, Messrs. McChesney, Campbell, Mann, and Lyser. Absent, Messrs. Denman and McMeans. At the suggestion of Mr. McChesney, it was unanimously resolved to invite John Swett to join and deliberate with the Committee. Mr. Swett accepted the invitation. Mr. Mann nominated Mr. McChesney as Chairman of the Committee and Mr. Lyser as Secretary. They were elected, and business was proceeded with.

Mr. Mann suggested that the next State Convention of Teachers meet on the 1st, 2nd, and 3rd of July. Carried.

The place of meeting was then discussed. Los Angeles, San Jose, Oakland, San Francisco, and Sacramento were suggested. It was finally determined by a unanimous vote that it should be held at Sacramento.

In reply to a question by Mr. Campbell, Mrs. Carr stated that County Superintendents could legally call their Institutes to meet at the same time and place, and in conjunction with the State Association.

The kind and order of exercises was then discussed. Some members favored a division of the Association into sections, others a general convention. Mr. Mann moved that the plan suggested by Mr. Lyser be adopted, which was carried.

This plan is as follows:

The Association will meet from 9 to 12 A.M. daily, in sections for High School work, Grammar School work, Primary School work, and Superintendents' Meetings; from 1 to 4 P. M., the Convention will meet *en masse* for general exercises, discussions, short addresses, etc. The evening sessions are to be devoted to lectures.

The President of the Association, A. L. Mann, was requested to invite Governor Irwin to deliver the address of welcome on the evening of Monday, July 1st.

It was decided to invite President John Le Conte, Dr. Joseph Le Conte, Dr. Fisk of San Francisco, and others, to lecture to the Institute.

A sub-committee of one was appointed to make proper arrangements for each of the departments of the convention. Mr. Campbell was appointed for the Superintendents, Mr. Swett for High Schools, Mr. McDonald of Sacramento for Grammar Schools, Mrs. Carr for Primary Schools and General Exercises, and Mr. Mann for Lectures.

It was resolved to levy a fee of fifty cents for the registration of each voting member of the Convention, for general expenses.

A Committee, consisting of Mrs. Carr, and Messrs. Mann and Campbell, was appointed to prepare resolutions and a recommendation for a legislative committee of twenty-five, to be chosen at the Convention, and to be appointed equally from all parts of the State.

The Secretary was requested to notify County Superintendents of the meeting of the Association, and to ask their active co-operation therein. Also, to ask them to

notify all teachers in their respective counties, and to send delegates from their County Institutes.

The Committee then adjourned until Saturday, May 25th, when the programme of exercises will be presented and decided on.

A. L. MANN,
President,
J. B. McCHESNEY,
President Executive Committee.
ALBERT LYSER,
Secretary.

THE FROBEL EDUCATIONAL ASSOCIATION OF CALIFORIA.

On Thursday evening, April 4th, a number of teachers and earnest friends of education met in the parlors of the residence of Hon. J. E. Benton, and completed the organization of the first Kindergarten Society of the Pacific Coast.

The objects of the society are mutual improvement, and the dissemination of the principles, literature, and approved methods of the new education, beginning with the kindergarten.

The officers elected for the first year are —President, J. B. McChesney, Oakland; Vice-Presidents, J. E. Benton, Oakland, John Swett, San Francisco, Charles H. Allen, San Jose, Mrs. Jeanne C. Carr, Sacramento, F. M. Campbell, Oakland, Rev. Mr. Afflebacher, Oakland, G. C. Hall, San Francisco, Mrs. H. M. Solomons, San Francisco, H. P. Carlton, San Francisco, Dr. McLean, Oakland, Miss Culbertson, Oakland, Mrs. M. W. Kincaid, San Francisco, Mrs. S. P. Byrod, Sacramento, Mrs. F. B. Ginn, Oakland; Secretary, Albert Lyser, Editor JOURNAL; Treasurer, W. H. Friend, Oakland; Corresponding Secretary and Librarian, Miss Emma Marwedel.

Four meetings of the Society have been held, at which there has been an excellent attendance, and much interest manifested.

A number of suggestions have been made at these meetings looking to giving greater publicity and effect to Miss Marwedel's labors in kindergartening.

A normal class has been suggested; also an incorporation of the Society, in order that it may adequately supervise and assist the general introduction of true kindergartens into California. It has also been proposed that the Association shall have a course of lectures given in Oakland and San Francisco, in aid of its objects.

These suggestions will all probably be adopted.

At the meetings thus far held, Miss Marwedel has lectured on "Self-help," "Motion Plays," and "The Occupations."

The lectures have, one and all, been marked by a profound knowledge of her subject, a fervent love of children, and a kindling enthusiasm in what is evidently her life work.

At the meeting held April 25th, Mr. Benton made a few eloquent remarks (apropos of the birthday of Frederich Fröbel) on that great teacher's life, character, and services. A lady present, Mrs. Dr. Stone, who had met and known Fröbel, thirty years ago, related a conversation held with him at that time.

We believe the Society has entered on a grand and successful career, and will prove of immense service to the cause of a true education on this coast.

School Legislation.

Following are the changes made in School Laws by the last Legislature. They are of the nature of amendments to sections of the Code:

Section 1576. Each county, city, or incorporated town, unless subdivided by the legislative authority thereof, forms a school district; provided, the Board of Supervisors may include more territory than that now included within the boundaries of any incorporated town.

Sec. 1746. State Educational Diplomas must be issued to such persons only as have been employed in teaching five years, and who have held

a first grade city or county certificate for at least five years.

1770. The County Board must meet and hold examinations as follows: Commencing on the last Wednesday in the months of June and November of each year. The place of meeting must be designated by the Chairman.

See. 1775. The Board may, without examination, renew first grade county certificates on the application of the persons who have held them for three years: also, second grade county certificates upon the application of the persons who have held them for two years; also, third grade county certificates upon the application of the persons who have held them for one year, to remain in full force and effect so long as such persons follow the occupation of teacher; provided, that the Board may revoke any county certifieate for immoral or unprofessional conduct, profanity, intemperance, or evident unfitness for teaching.

Sec. 1793. The holders of certificates are eligible to teach in the cities in which such certificates are granted, and also in the several counties of the State in schools of grades corresponding to the grades of such certificates.

Section 1746 does not take effect until May 26th, 1878. No application for an educational diploma will be considered unless accompanied by the recommendation of the City or County Superintendent, and the city or county certificates upon which said diploma is asked, there being no record of city or county certificates in the office of the State Superintendent.

CORRESPONDENCE, NOTES, AND QUERIES.

Answers to Queries in March Number.

EDITOR JOURNAL: Seeing in the March issue an article headed "More Questions," I would submit the following answers:

ARITHMETIC.

In extracting the cube root, what relation is there at any stage of the process between the number in the root and the greatest possible remainder?

The root is always an exact divisor of the greatest possible remainder.

ALGEBRA.

Find by a simple equation a number, the square of which exceeds its square root by 14.

Equation, $x^4-x=14$; by transposition we have $x^4=14+x$; extracting square root, $x^2=\sqrt{14+x}$; again, by transposition we have $x^2-\sqrt{14+x}=0$ completing the square, $4x^2-(\ )+(14+x)=0$; e tracting square root, $2x-\sqrt{14+x}=0$. Again, we have $2x=\sqrt{14+x}$; squ ring both terms we have $4x^2=14+x$; transposing and uniting terms we have $4x^2-x=14$; completing the square, $64x^2-(\ )+1=225$; extracting square root we have $8x-1=15$; hence, $x=2$ and $x^4=16$. Verification: $16-2=14$.

Respectfully, T. S. PRICE.

FRESNO, CAL., March 29, 1878.

Vocation or Avocation?

TO THE EDITOR: I read with pleasure the criticism of "C." in the last number of the JOURNAL, on the improper use of *in* for *into;* and I take the liberty to direct attention to the almost universal misuse of the word *avocation* for *vocation.* We see *avocation* used in the sense of *vocation* nine times out of ten in the public prints. For instance, the Los Angeles *Star* mentions parties living on Santa Catalina Island, as pursuing the *avocation* of sheep herders, from which we must infer they were gentlemen of leisure, herding sheep by way of amusement. Appleton's American Cyclopedia informs us that "The Foolahs are found in most of the towns of Soodan, pursuing the *avocations* of dairymen and cattle breeding." (See, Vol. VII, subject Foolah.) I have found the same error in other places in that most excellent work.

Now one's *vocation* cannot possibly be his *avocation*; the words are entirely distinct in meaning. See Webster's Dictionary, or refer to the etymology of both words. My *vocation* is teaching, my *avocations* are various; at the present moment my *avocation* is writing this communication to the JOURNAL, and yours, gentle reader, is reading it. R. B. W.

Wilmington, April, 1878.

EDITOR JOURNAL: By giving through the colunms of your journal the spelling of the word "picnicking, you will settle a dispute and oblige a subscriber. The above spelling is contradicted. TEACHER.

Panoche, Fresno Co., April, 13th 1878.

Picnicking is correct; so spelled to make the c hard. But picnic is spelled without a k. H.

Suggestion—Will some correspondent to the JOURNAL write an article on L. C. M. and G. C. D., illustrating wihh simple, every-day problems? W. H.

Nevada County.

Educational Intelligence
FROM
STATES AND COUNTIES.

OREGON.

D. M. C. Gault has been elected Principal of the Hillsboro' school. Mrs. Gault is Assistant.

In Washington County, Mrs. B. Miller has been elected School Director. She is the first woman elected to such a position in this State.

From the annual report of Supt. J. J. Brown, of Portland, we cull the following facts in regard to the public schools of that city. There are about 2500 pupils in daily attendance in the Portland schools. There are 102 teachers employed, 41 in graded and the remainder in ungraded schools. The average salary paid to male teachers per month is $71.95; to female teachers, $55.42.

A good additional school-house is now nearly completed, and another will soon be begun.

A fine school building, costing $11,000, and accommodating 600 pupils, is in process of completion at Eugene City. An excellent school of five classes and 300 pupils is already in operation in that city.

STATE OF NEVADA.

The Gold Hill schools were allowed a vacation, to attend the State Institute at Carson on the 22d ult. Their salaries were continued, and they were expected to attend, unless excused.

They are to have a new school-house in Flowery District.

Prof. H. H. Howe has announced himself as candidate for the position of State Superintendent of Public Instruction.

A writer in the Nev. *Chronicle* finds fault with State Superintendent Kelly for calling a State Institute. He, notwithstanding, made arrangements, and secured the Senate Chamber for the sessions. Hotel accomodations were secured, and the people of Carson gave a reception to the teachers on the evening of the 25th.

The school at American Flat, in care of Gertrude Flanagan, is proving a first-class success.

The State Teachers' Institute, presided over by State Superintendent Kelley, met in Carson City, April 22d, to 26th. Among the addresses were one by Supt. F. M. Campbell, of Oakland, California. A full report of this Institute will be given in the JOURNAL.

Prof. J. N. Flint, a graduate of Yale and an able teacher of Virginia City, will be a candidate for State Superintendent of public instruction before the ensuing Republican Convention.

There are 2275 pupils in regular attendance on the Virginia City public schools. The cost of these schools for the past year was $167,691, an average for each pupil of $75 per year.

CALIFORNIA.

SAN FRANCISCO COUNTY.

There has been so much complaint, by both parents and teachers, of the length of our present course of study, that a Committee of the Board has been appointed to make a thorough revision. A new course is imperatively required, and one prepared with wisdom and *conservatism* will, we believe, be permanent. What the San Francisco schools need is rest. If they could work under the same system for only four or six years, they would undoubtedly make infinitely more progress than for some time past. Let the changes absolutely necessary be made with care and judgment, and then give us a fair chance to try them.

An item last month, in regard to overcharges for material, not provided for in the usual contracts, did injustice to one of the most conscientious and able members of the Board, the Chairman of the Committee on Supplies. The facts are, that since the present Chairman assumed his position, every demand against the treasury has been closely scanned and properly rejected on the slightest appearance of imposition.

A new building of eighteen class-rooms is is about to be erected at a cost of nearly $30,000.

Among the teachers elected into the Department in April, are Mrs. M. W. Phelps and Miss Jean Parker. These ladies were formerly prominent and successful teachers, the former in Oakland, the latter in this city, but have not taught for three or four years. Their return to this Department is an acquisition to the professional ranks.

We consider the following measure passed by the Board in April, its most important act since coming into office, and the one that will most redound to the working efficiency of the schools. By resolution of the Board, teachers who have not had a year's experience in teaching, and those whose methods of teaching are reported by the Deputy-Superintendent as being unsatisfac-

tory or deficient, are required to attend a Normal class twice a month, and hear lectures on teaching, and receive such other general instruction as may be necessary. All earnest and conscientious young teachers will hail with delight this opportunity to improve in methods of teaching, by being instructed by the ablest teachers in the State.

The ungraded class to which we referred in April, that is, the class in the three R's, has been established. A building will be erected immediately to accommodate it, large enough to extend it materially should the experiment be successful.

All the large schools of the Department are now connected with the Rooms of the Board by telegraphic apparatus. Why not attach telephones? The expense would not be much greater.

All the classes are working hard preparing for the annual examination.

Mundane affairs are proverbially imperfect, but we believe the system adopted by the present Board of Education for the election of teachers, is worthy of imitation in every large city where there are many applicants, and where positions are desirable. All nominations made for a vacancy (and sometimes there are a dozen) are referred to a "Committee on Credentials and Qualifications of Teachers." Of this committee the Superintendent, a practical teacher himself, is a member. The candidates appear before this Committee with their testimonials, recommendations, evidences of scholarship and success as teachers. After examining the comparative merits and claims of all the candidates, the Committee report back to the Board the name of the one or more candidates whom they consider as most worthy of election. This action is not binding on the Board, who may elect some one not recommended, but, of course, it has great weight. If any city in the East has a better system than this, we trust our educational exchanges will tell us of it.

ALAMEDA COUNTY.

Mr. C. H. Chamberlain, formerly connected with the Oakland press, is filling very successfully the Principalship of the San Leandro schools.

Superintendent Gilson is making frequent visits to the schools of the county. He does not visit merely, however. He makes suggestions on methods of teaching, notes defects, and corrects them, and then makes it a point to visit the same school a second time to ascertain what improvements have been made. He is giving great attention, at present, to the subject of penmanship and composition, requiring uniform work from the teachers.

The Hayward school is one of the best in the State. There are 339 pupils enrolled, with five teachers. This is a very small corps, but the services of each are utilized so as nearly to double their working power. The eighth grade teacher closes her school at 2 P. M., and then teaches one of the higher classes until 4 P. M. The 6th and 7th grade teachers do likewise. In this way four teachers do the work of six. The salary of each assistant is $75 per month. The Principal of the School is A. C. Bloomer, the assistants are Miss A. McCord, Miss Sadie Regan, and Miss Maud Russell.

BUTTE COUNTY.

[We were much pleased to receive the following interesting communication; among the teachers spoken of are some of the oldest and most valued friends of the JOURNAL, teachers who would be an acquisition to any part of the State.—ED. JOURNAL.]

EDITOR JOURNAL: To one not interested, it would seem but fair and just that your county correspondents in reporting changes of teachers, and in commenting in general upon school matters of their several counties, should be liberal enough to include in such reports the entire county, and should not confine themselves too exclusively to their immediate locality.

Butte is quite a large county, and employs many teachers, yet I have noticed in several of your notes of our county that the teachers in the vicinity of our most populous city, Chico, are completely ignored.

I do not belong to the profession, but I think that in consideration of the fact that this end of the county employs the most teachers, and that among them can be found some of the best in the State, it is but just that they receive honorable mention in your columns. I shall therefore call attention, not in malice to your Butte correspondent, to a few of our prominent educators in *this* end of the county.

At the head of the profession in this county stands H. T. Batchelder, Principal of the Chico High School, a graduate of Bowdoin, the holder of a life certificate, and one of the most successful teachers in California. Mr. Batchelder held the position of County Superintendent two terms,

and is now teaching his sixth term in the Chico schools. He possesses the rare combination of qualities indispensible in the good teacher, viz: ability, adaptability, experience, and energy. He has spent a lifetime in the school-room, and yet the vigor of his work is unabated.

Next in the list comes O. E. Swain, the Grammar Master of the Chico schools—one whom the Hon. John Swett would characterize as "a live teacher." In attainments, Mr. Swain stands with few peers in northern California, while in vigor of thought and perspicuity of statement, he stands aloof and alone. Unusual success stamps his every act in the school-room, and his friends will soon urge him to take "a higher seat." The County and State Boards have given him their highest certificates and diplomas, and now have nothing more to offer.

W. E. Cressy, with thirteen years experience and a life diploma as a voucher of his ability, occupies the second grammar department, a position made vacant by the recent resignation of R. De Lancie, who was in March called to fill a position in the Sheriff's office.

Mrs. L. L. Sproul, a lady of ten years' experience, presides in the third Intermediate. She is an excellent lady, a fine teacher, and is well liked by her pupils. She is teaching her second term in Chico.

Miss Louise Hibbard, lately from New Hampshire, teaches the second Intermediate. Her experience extends over a period of three years—a sufficient guaranty that she is a success in her profession. Miss Hibbard taught the Inskip school last summer, and has engaged to teach the same school again this season, commencing as soon as the term closes in Chico.

Miss Laura Cushman, of the third Intermediate, is now teaching her third term here, and has always given satisfaction. She was born, raised, and educated in this county, and ranks high among her fellow teachers.

Miss Jennie Whiteside, of the first Primary, is an earnest and successful teacher. She is teaching her fourth term in that department.

Miss Sarah Garwood, teaching the second Primary, is one of the best primary teachers in the State, and gives universal satisfaction.

The Chico schools have about five hundred pupils in attendance, and are known as the best schools in northern California.

G. H. Longenecher, an old and experienced teacher, is teaching at Little Chico. Success marks all his teaching.

Miss Lillie Hasty will teach the coming term at Lovelocks, where she taught last summer. She is a graduate of the Chico High School, and is spoken of as a promising teacher.

Miss Jennie Greenwell is still teaching at Dayton, and is winning fresh laurels every day. The principal of the Dayton school, Mr. Humphreys, lately succeeded T. P. Ashbrook in that school, and is suceeding very well.

A. Lochrie closed a successful term of six months in York district on the 9th, and will take charge of the Rock Creek school on the 15th.

The Nord school, lately taught by R. H. Allen, closed a short time since.

Antelope school is in charge of Miss Mary Gardner, a young lady who is making teaching a success.

Miss Wilson is teaching at Four Corners, and is said to be one of the best lady teachers in Butte. Her pupils and patrons bear testimony to the report.

Levi Van Fossen, a teacher of twelve years' experience, is teaching the Webster school. He succeeds S. A. Holman, who is now teaching at Nelson.

Miss Kate Conger, late of the Normal School, has taken the school at Central House, Miss Givens having resigned her position in that school.

E. F. Buss has gone to Camptonville, or vicinity, to teach during the summer.

Miss Helen Crum expects to teach at Prattville, Plumas County, the coming summer.

Chico still has several young lady teachers—good ones too—waiting for an opportunity to inscribe their names upon the muster-roll for active duty in the school-room.

The teachers at Biggs and Gridley are hard at work, and are making success a certainty.

I would be pleased, Mr. Editor, to send you an occasional letter from this end of the county, and will try not to appear "sectional" in my comments upon our teachers. I esteem them all—ladies and gentleman, young and old—very highly, and wish them God-speed in their noble work, my only regret being that they do not receive salaries and honors equal to those received by members of either the legal or the medical profession.

I occasionally see a copy of the JOURNAL, and, if I may be allowed to judge of the merits of an educational monthly, I will say it is an invaluable aid to the active and energetic teacher, and should be found in every school.

If you will pardon me for trespassing so much upon your columns, I will remain, your obedient servant. W.

Chico, April 13th, 1878.

MENDOCINO COUNTY.

Supt. Ruddock is traveling through the county visiting schools.

Official notice has been received of the opening of the following schools: Little River, April 8th, P. F. Higgins; Whitehall, April, 1st, H. H. Frazier; Anderson, March 25th, A. P. Woodward; Carrol, April, 1st, Miss May Carpenter; Mill Creek, April 8th, Miss Kate Siddons; Con Creek, March 18th, A. Mock; Cahto, April 2d, Miss E. N. Fowler; Hopland, April 3rd, Ben. J. Ruddock; Elk Creek, April 1st, Miss Sophie Cranz; Calpella, March 11th, Miss Mary Wurtenburg; Gualala, April, 1st, Miss Nettie Trueharty; Oriental, April 1st, J. O. B. Wyatt; Yorkville, April 1st, J. M. Adamson; Manchester, April 1st, W. C. Granger; Bridgeport, April 1st, Miss E. Duncan; Pomo, March 1st, F. M. Crosleys; Long Valley, April 1st, Mrs. Huff; Counts, April 7th, I. L. Grainger: Round Valley, April 8th, H. W. Mathews and D. B. Cummings; Ocean, April 8th, Mrs. Mary E. Tuttle; Albion, April 8th, W. H. Hatton; Sherwood, April 8th, Walter Maxwell.

The Institute will probably be held the second week in June.

Carroll, Mill Creek, Hopland, Redwood, and Con Creek school districts commence this term in elegant new buildings.

SAN DIEGO COUNTY.

The Board of Supervisors have established the boundaries of three new school districts, and granted petitions for three more.

YREKA COUNTY.

The public school under charge of Mr. J. E. Putnam, seems to be a grand success. There are 221 pupils enrolled, and an average attendance of 92 per cent.

Scarlet fever is making sad havoc in some of the schools.

SHASTA COUNTY.

B. F. Roberts, who is known as the "chronic member of the Board," completes his term on Bear Creek, and takes the Eureka school for the summer.

J. M. Gleaves goes to French Gulch, leaving pleasant memories behind him at Igo.

Francis Carr remains at Millville, and has lately been delivering some lectures to the literary society of that place.

Cromwell, of the Reading school, will spend his vacation teaching at Buckeye, and his wife will teach in the Stillwater district.

Frank Lord has still an affection for Pine Grove.

James Eaton, one of our young teachers, has won golden laurels in his school across the river.

C. H. S.

LOS ANGELES COUNTY.

The work of setting out trees and irrigating the school lot in Anaheim was finished on Thursday. In a few years this lot will be one of the most beautiful parks in this county.

The Board of Trustees of Anaheim District have taken action in reference to selling the bonds for the purpose of building a school-house. Plans are advertised, and soon we shall have a school building second to none in the county.

A correspondent writes: "The citizens of Tustin City school district have been notified to hold a meeting to see about building a new school-house. We hope when the vote is taken that the 'clique' will not 'run in' the sheep herders to vote against men with families, as was done two years ago. If the citizens wish settlers to settle here, a good school-house should be built and a good school maintained. A good education is a step towards heaven. Trustees will bear this in mind."

MONTEREY COUNTY.

Mr. R. A. Paden, of the Oak Grove school has been awarded a first grade State certificate, based on the papers sent up from the last County Board of Examination.

Mr. McCroskey, County Superintendent, intends to hold the Teachers' Institute in Salinas on the 7th, 8th, 9th, and 10th of May, if he can secure lecturers for that time.

Mr. McCroskey's examination exercises at the Santa Rita school, on the 5th, were very interesting. Mr. McCroskey is very proud of his pupils.

A double wedding took place in the Spadra school-house recently.

The Monterey County Institute will be held this year at Salinas City. It will occupy the 7th, 8th, 9th, and 10th of May, with evening sessions also. The efficient Superintendent, Mr. R. C. McCroskey will preside. Prof. Charles Allen of the Normal School has been invited to attend, also our rising and talented yonng writer, Charles H. Shinn.

SANTA CLARA COUNTY.

The colored school in San Jose has a band which gives public entertainments.

The State Normal School will close on the 25th of May. Supt. Chipman delivers the annual address before the Alumni on the evening of the 26th.

The $32,000 appropriation, which passed both Houses, for the improvement of the Normal School grounds, failed to become a law, the Governor pocketing the bill. It is said the Governor has a great antipathy to our Normal School, and says it ought to be abolished; but he is not justified in vetoeing a bill which will entail so much suffering on charitable institutions included in the bill, to carry out his spite against the Normal school.—*Exchange.*

TRINITY COUNTY.

They are taking steps for a new school-house in Weaverville. The trustees hold their business meetings on Sunday. We suppose they cannot get a quorum any other day. We think they need school-houses up there.

SOLANO COUNTY.

The public schools at Vacaville opened on the 9th. Mr. Tillston remains; Mr. Sullivan is succeeded by Miss Elliott.

The Rio Vista school, under charge of Mr. Sickal, as we might expect, is a success.

The $5,000 mortgage on the Vallejo public school property has been lifted, and the schools are now out of debt.

Prof. A. W. Sutphen, from whom we had a pleasant call in April, showed us the course of studies in the High School Department of the Benicia Schools, over which he presides. This is, without exception, the most sensible, judiciously prepared course of study for the high schools of small cities that we have ever seen. We shall, as soon as our space permits, publish it for the benefit of those who are trying to remove the altogether too common prejudice against higher education. We think such a course as this will aid materially in bringing about that result.

Examination Questions for Teachers.

READING.

(Conducted orally—50 *credits.*)

THEORY AND PRACTICE OF TEACHING.

1. Explain, as to a class, what is meant by the fraction ¾. 2. Give an illustration of the inductive method of teaching. 3. Illustrate the methods of notation used in percentage, *by words, by a fraction, by a decimal, by use of a sign.* 4. What is the duty of teachers at recess, and how would you make the time of recess most pleasant and profitable. 5. Explain the scope and methods of language teaching to primary schools.

WORD ANALYSIS.

(50 *credits.*)

1. Write the derivatives obtained by adding *ing* to the following words: *Censure, unpin, confer, dye, play, die. tolerate, control, journey, defer.* 2. Give five words, with their meanings, derived from the root *ped, meter* or *logy.* 3. What is the difference between analysis and synthesis? What is antithesis? Give an example. 4. What suffixes are used to form nouns? 5. Give the difference in meaning between *painting* and *picture, dumb* and *mute, fruitful* and *fertile, expect* and *hope, courage* and *fortitude.*

MENTAL ARITHMETIC.

(50 *credits.*)

1. 108 is how many times 15? 2. A man is 60 years of age, and 20 per cent. of his age is 25 per cent of the age of his wife. How old is his wife? 3. When bank stock is quoted at 105, how many shares can be bought for $840? 4. A uumber multipled by 6, divided by 3, multiplied by 8 and divided by 4, equals 96; what is that number? 5. How is the value of a proper fraction affected by adding the same number to both its terms? Illustrate, taking 3-5.

HISTORY OF THE UNITED STATES.

(50 *credits.*)

1. Name the "old Thirteen States." 2. Name in their order the colonial and other wars in which the inhabitants have been engaged. 3. Name in their order the inventions which have influenced the development of the country. 4. Under whose administration was the first treaty with Japan effected? 5. What was Lewis's and Clark's expedition?

NATURAL PHILOSOPHY.

(50 *credits.*)

1. Make a diagram showing the order of colors in the spectrum. 2. Define the terms *atom* and *molecule.* 3. Explain what is meant by steam of *low pressure?* and high pressure? 4. Give three familiar instances of an inclined plane. 5. Compare the magnet with the electro-magnet, giving three points of difference.

ALGEBRA.

(50 *credits*.)

1. Find the least common multiple of $x^4+2x^3+1x^2-2x+1$, x^2+2x+1, x^2-2x+1, $x+1$, and $x-1$.

2. Given $\left\{\begin{array}{l}\frac{1}{x}+\frac{1}{y}=2\\ \frac{1}{x}+\frac{1}{p}=3\\ \frac{1}{y}+\frac{1}{p}=3\end{array}\right\}$ to find x, y, and p.

3. Simplify

$$\left(\frac{x^2-a^2}{x^2-b^2}\right)\times\left(\frac{x^2-(a+b)x+ab}{x^2-(a-c)x-ac}\right)\times\left(\frac{x+b}{x^{-2}-a^{-2}}\right)$$

4. A grocer sold 50 lbs. tea at an adv. of 10 per ct. on cost, and 30 lbs. coffee at an adv. of 20 per ct. on cost, and re forceived the whole $27.40, gaining $2.90. What, per pound, was the cost of the tea and coffee?

5. Given $\left\{\begin{array}{ll}(x^2+y^2) & (x-y)=13\\ xy & (x-y)=6\end{array}\right\}$ to find x and y.

NATURAL HISTORY.

(50 *credits*.)

1. How does an herb differ from a shrub? 2. Describe the metamorphosis of the silk-worm. 3. State what yon know of the structure and uses of polyps. 4, Compare the modes of growth of palms and pine trees, and state their relative importance to man. 5. Give a comprehensive definition of an animal.

MUSIC.

(25 *credits*.)

1. What beats are accented in 4–4 time? 2. How many whole tones and how many semitones constitute a scale? 3. Write out the meaning of each of the following abbreviations: D. C., p., pp., f., ff. 4. Write the scale of E, and mark each note that is sharped. 5. Define a chord.

PHYSIOLOGY.

(50 *credits*.)

1. Describe the effect of a common cold upon the lungs and state how it should be treated. 2. Describe the process of digestion. 3. What effect has excessive mental labor on the growth and general health of children? 4. Describe the structure and functions of *the skin*, and deduce hygienic rules for maintaining its healthy condition. 5. Show the effects of compression and confined postures upon the lungs and heart, and explain the uses of the diaphragm.

CONSTITUTION OF U. S. AND CALIFORNIA.

(25 *credits*.)

1. How may a foreigner become a citizen? 2. What is meant by the Writ of Habeas Corpus, and in what cases may it be suspended? 3. Under what limitations is liberty of speech guaranteed by the constitution of California? 4. What are the legal boundaries of the State? 5. When does the fiscal year begin?

SCHOOL LAW.

(25 *credits*.)

1. What are the powers of the State Board of Education? 2. For what may teachers expel pupils? 3. Who may be admitted to the State Normal School? 4. Who may receive first grade certificates without examinations? 5. What constitutes a school month.

INDUSTRIAL DRAWING.

(25 *credits*.)

1. What relation does geometry bear to drawing? 2. What are constructive lines? 3. Draw a five pointed star, an ivy leaf, an orange. 4. Give, as to a class, an idea of what is meant by perspective drawing. 5. In drawing a line, what two points must be kept in sight?

Review Questions for First Grade Classes.

[Prepared by D. C. STONE, Deputy Superintendent of Public Schools, San Francisco.]

WORD ANALYSIS.

1. (*a*) Mention five words derived from the Arabic.

(*b*) Mention five Spanish-American words, with a definition of each.

2. Mention five words derived from the American Indian language, and five from the Italian language.

3. Analyze contradict, transfer, subscribe, dissever, innocent. Model: Semi-fluid = semi, half + fluid = half fluid.

4. Combine *ous*, *ious*, or *eous*, with the follow-

ing: Pretence, pity, error, grief, wonder, religion, iniquity, miscellany, duty, right.

5. Combine *ion*, meaning *the act of*, with contend, retain, detain, produce, oppose suppose, attend, reduce, intend, convene.

6. Mention five words derived from *voco*, to call, and five derived from *mitto*, to send.

7. Define ferriferous, auriferous, argentiferous, coniferous, carnivorous, herbivorous, graminivorous, omnivorous, superhuman, supernatural.

8. (*a*) Give the Greek prefixes signifying against, chief, false, seven, well.

(*b*) Give and define five words ending in *meter*.

9. (*a*) Define chronology, geology, ichthyology, theology, zoology.

(*b*) Mention and define five words derived from *polis*, a city.

10. Give two important rules with their exceptions, used in forming derivative words.

ARITHMETIC.

First Grade.

1. (*a*) Define interest, stocks, a fraction, percentage, a cubic foot.

(*b*) 16 is 4 per cent. of 8 per cent. of what number?

2. A man sells two houses for $500 apiece. On one of them he makes 25 per cent., on the other he loses 25 per cent.; what per cent. does he gain or lose on both together?

3. (*a*) Having the diameter of a circle given, how do you find the circumference? the area?

(*b*) How many acres in a circular field having a radius of 523 rods?

(*c*) How many square inches in a circle having a diameter of 52 inches?

(*d*) Find the diameter of a circle containing 100 square miles.

4. $\dfrac{10\frac{2}{3}+5\frac{1}{2}+\frac{2}{3}\times 8}{3\frac{1}{5}+\frac{2}{4}+3\frac{2}{3}} = ?$

5. How many cords of wood can be packed into a cellar 25 feet long, 18 feet wide, and 8 feet high?

6. A freight clerk on Clay Street Wharf measures five boxes consigned to B. H. Perry & Co, Eureka, and finds their dimensions in feet to be as follows:

1. $5\frac{5}{12}\times 2\times 1\frac{1}{2}$
2. $4\frac{1}{2}\times 3\times 1\frac{1}{4}$
3. $5\times 1\frac{7}{12}\times 2\frac{1}{4}$
4. $3\times 2\frac{11}{12}\times 1\frac{5}{12}$
5. $4\times 3\times 2\frac{1}{2}$

Reckoning 40 cubic feet to the ton, how many tons in the five boxes, and what will the freight amount to at $3.25 per ton?

7. Find the cost of excavating a basement 75 feet long, 52 feet wide, and 10 feet deep, at 67 cents per cubic yard.

8. The population of an island was in the year 1860, 12,680. From various causes the population diminished at the rate of 5 per cent. a year for 5 years. What was the number of inhabitants in 1805? (Use no fractional per cent., but take the nearest whole number.)

9. How many bushels of grain in a bin 14 feet square on the bottom, and 12 feet deep? (2150.42 inches = 1 bushel.)

10. (*a*) How may gallons of water in a tank 7 by 5 on the botton, and four feet deep? (231 cubic inches to the gallon.)

(*b*) How many feet, board measure, in a fence 48 rods long, four boards high, and posts 8 feet apart. The boards to be 6 inches by 1 inch, and the posts 6 feet high and of scantling, 4x4 inches?

Examination Questions for Pupils.

FIFTH GRADE.

Language.

1. How many kinds of pronouns are there? 2. Name them, and give an example of each. 3. What is a root word? Give two examples. 4. What is a suffix? Give three suffixes. 5. What is a proper noun? Give two proper nouns. 6. How many kinds of adjectives are there? Name them. 7. Give two limiting adjectives, two proper adjectives, and two descriptive adjectives. 8. Write a sentence containing "who" as a relative pronoun. 9. Write a sentence containing "who" as an interrogative pronoun. 10. Give two rules for the use of capitals.

SIXTH GRADE.

Arithmetic.

1. Write and add:

904.5
6909.05
20900.
8.048

2. If five pints of milk cost 25 cts, what will a gallon cost? [Work required.] 3. If a man buys a house and lot for $25,785, and sells it for $23,989, what does he lose? 4. A man has $150.00—he buys some cloth for $27.50, some silk for $48.75, some stockings for $5.85, a trunk for $10.25. How much does he spend, and what has he left? 4. Give two numbers, that multiplied together will give 100, 81, 144. 6. If 25 is the fourth of a number, what is the number? 7. How do you obtain the half of a number? How do you obtain the fifth of a number? 8. If 9 men earn $81.00, how much will 12 men earn? Work required.] 9. From 7,894.38 take 2,987.5. 10. Multiply 2,499.5 by 9. Divide 2,499.5 by 9.

SIXTH GRADE.

Language—Questions on year's work.

1. Write a sentence containing only two words. 2. Name the parts of speech used in said sentence. 3. What is an adverb, and give two examples. 4. Write a sentence containing an adjective, a noun, a verb, and an adverb. 5. What kind of a sentence have you written? 6. Name two different kinds of sentences. 7. Give examples of each. 8. Of what use is the pronoun? Give a sentence showing its use. 9. Give three questions that may be answered in describing an object. 10. Correct all errors in the following: He Done it before You. i Seen a man on horseback yesterday. I did n't do nothing. I've got to get my lesson.

SEVENTH GRADE.

Arithmetic.

1. Compare 4 with 20. [Four ways.] 2. Write two numbers that multiplied together will give 24 for an answer. Give two examples in division having 3 for an answer. 3. If I have 30 cents, and spend 10 cents for some paper, 9 cents for ink, and 5 cents for a ruler, how much do I spend? How much have I left? [Work required.] 4. If $\frac{1}{4}$ of anything costs 5 cents, what will the whole cost? [Work required.] 5. From four 4's take ten 1's and tell how many 3's are left? 6. 24 is double what? 7. I took a certain number once, and again, and again, and obtained 18 for an answer; what was the number taken? 8. From what number can I take 11×2 and have 3 left? 9. At 4 cents each, how many pencils can be bought for 24 cents? [Work required.] 10. If a hat costs $7 what will 3 hats cost? [Work required.]

BOOK NOTICES.

PHYSIOGRAPHY. An Introduction to the study of Nature. By T. H. Huxley, F. R. S. New York: D. Appleton & Co.

One secret of Huxley's great power as a teacher and leader in science lies in his complete mastery of every detail of his subject, his systematic arrangement, and the concise and simple manner of his explanations. Every teacher will appreciate these merits, which are specially prominent in the work before us. "Physiography" is what teachers would ordinarily term Physical Geography: it is prepared directly for teachers and schools. But we find it differs widely from the traditional Physical Geography of our schools. This difference can be most plainly seen by quoting Prof. Huxley's own words. Among other things, it will be seen that Huxley, like Agassiz, is pre-eminently a TEACHER.

He says: "I borrowed the title of 'Physiography' inasmuch as I wished to draw a clear line of demarcation, both as to matter and method, between it and what is commonly understood by 'Physical Geography.'

"I do not think that a description of the earth, which commences by telling a child that it is an oblate spheroid, moving round the sun in an elliptical orbit, and ends without giving him the slightest hint towards understanding the ordnance maps of his own country; or any suggestion as to the meaning of the phenomena offered by the brook which runs through his village, or the gravel pit whence the roads are mended, is calculated either to interest or to instruct.

"'Physiography' has very little to do with this sort of 'Physical Geography.' My hearers were not troubled much about latitudes and longitudes; the heights of mountains, depths of seas; or the geographical distinction of Kangaroos and *Compositae*.

"I endeavored to show that the application of the plainest and simplest process of reasoning to any one of the phenomena to be found in any river basin, suffices to show, lying behind it, a cause which again suggests another; until, step by step, the conviction dawns upon the learner that, to attain to even an elementary conception of what goes on in his parish, he must know something of what goes on in the universe.

"It was necessary to illustrate my method by a concrete case; and, as a Londoner, addressing Londoners, I selected the Thames and its basin for my text. But any intelligent teacher will have no difficulty in making use of the river basin of the district in which his own school is situated, for the same purpose."

In conclusion, we advise every teacher who reads these lines to get this book, It will be found invaluable as a work of reference; and as a text-book for their own use, suggestive of instructive topics for daily use.

BETWEEN THE GATES. By Benj. F. Taylor. Chicago: S. C. Griggs & Co. San Francisco: A. Roman & Co.

This will be found a deeply interesting volume, descriptive of California life and scenes. As we enjoy page after page, many abounding in a suspicious flavor of "gush," we think

"Wad some gude power the giftie gie us,
To see oursells as ithers see us."

Is it possible that any considerable number of our Eastern visitors regard us in the light of this book, or is it only Mr. Taylor's poetic fancy getting rather the better of him?

Mr. Taylor's descriptions of California life, society, manners, and morals are decidedly *clever*, but are they true? We fear not. And while to a staid and sober citizen of this State this book may prove interesting, and certainly highly amusing, a shade of annoyance will prompt the questions —What does the man mean? And what is it all for? If for an interesting book on an interesting subject, written in a poetic strain, slightly tinged with fiction, then it is a decided success. As such, we can recommend it to our readers. It will do to take along with you on a railway journey, to read on a bright June day under the shadows of a spreading oak or gigantic *sequoia*, or around the fireside on a rainy winter evening.

LAMERA AND OTHER POEMS. By George Homer Meyer. San Francisco: A. Roman & Co.

We do not know whether the young man, who, by the way, is a native Californian, not yet twenty years of age, was named "Homer" by anticipation, or if the lucky name had some influence in leading him into the fields of poesy. At all events, the poem which names the little volume of 140 pages before us, evinces poetic ability of no mean order, and gives promise of decided distinction in the future. Among the other poems, "Lutzen," "Irene," and "Alabama," are good. On the whole, the book is worthy of a large sale.

ONE HUNDRED CHOICE SELECTIONS IN POETRY AND PROSE. P. Garrett & Co.: Philadelphia.

This is the kind of little book for which teachers are constantly searching. We all know how difficult it is to find "something new." This want is supplied by this series, of which this is No. 15.

The New England Publishing Company, of Boston, will soon publish "Outlines for the Study of English Classics," by A. F. Blaisdell. It is designed for a practical guide for teachers and students of English literature.

THE MAY MONTHLIES.

Harper for May opens with an interesting and beautifully illustrated article—"Coast Rambles in Essex." Eugene Lawrence contributes a fine historical sketch, illustrated, of "The Italian Poets." This number appears rich in Italian subjects, for in addition to this there are "Four Poems by Michael Angelo," and "The Italian Poet in Exile"—a poem. Another beautifully illustrated article is "Song Birds of the West." The serials, "Macleod of Dore" and "The Return of the Native," are increasing in interest; the former is undoubtedly the first romance of the year. There is the usual installment of good short stories and poems, and the Departments.

This is a fine number of *Lippincott's Magazine*, which is rapidly taking its place in the foremost rank of American monthlies. The illustrated articles in this number are "A Mountain Holiday," by Henry King; "In Roumanian Land," by Edward King, especially interesting at this time; "Old York," by G. H. Putnam, a description of the quaint streets and houses of Old York; "For Percival," the serial, which is an excellent story. The most noticeable of the other articles are the following: H. A. Huntington summarizes the entertaining career of Colley Cibber; Mary Dean utters a humorous "Counterblast at the married Folks"; Frank Furness, the architect, gives some useful "Hints to Designers"; and Charlotte Adams has some reminiscences of Gustave Courbet, the Communist artist; while Mrs. R. H. Davis writes about Cremation, and Mrs. Lucy Hooper about the Paris Theaters. "Theodolinde," by Henry James, Jr., is a story of Parisian life, in the author's peculiar vein; "Hephzibah Guinness" is by Dr. S. Weir Mitchell; "His Excellency 'Old Ugly,'" by Rev. Wm. R. Baker, and "A Tragedy of Sedan," which is a story in verse, by Anna C. Green; the whole forming a most delightful and entertaining number.

Appletons' Journal for May has several papers of special interest. The first is an elaborately illustrated article on "Rapid Transit in New York," which gives views of the elevated roads now nearing completion, describes and illustrates the method of constructing the Gilbert road. The second article of special interest is a collection of hitherto unpublished correspondence by Edgar A. Poe, gathered from original sources by J. H. Ingram, the English biographer of the poet. Julian Hawthorne has the first part of a striking novelette, entitled "Mrs. Gainsborough's Diamonds"; Dr. Guernsey gives a graphic description of the African king, Mtesa, whom Stanley affirms he converted to Christianity; and the editorial and book departments are not less interesting than usual.

St. Nicholas opens with a graphic story of the fisher-folk life of the Hudson River, with a fine frontispiece illustrating it—both by Mary Hallock Foote, and executed with her best pen and pencil. The inimitable "Peterkins" of Lucretia P. Hale re-appears, this time in the perplexities of "moving." Mr. Irwin Russell tells about "Sam," a darkey boy, the story being characteristically illustrated by Sol Eytinge. "Old Soup" is a tale about a wise old elephant of India, and "The Charcoal Burners' Fire; or Easter Eve among the Cossacks," is a narrative of Russian life, by David Ker. The number is rich in poems, and contains "The Sing-away Bird, by Lucy Larcom, with a lovely picture; "Wild Geese," by Celia Thaxter; some sweet verses, entitled, "Wait," by Dora Read Goodale, a little girl ten years old; and two pieces of humorous rhyme, with capital pictures by Church and Hopkins.

"Where money is Made," describing the Government Mint at Philadelphia; a paper about school-children in Paris, with several pictures; and "The Story of May-day" and some of its curious customs in various parts of the world, by Olive Thorne, are among the contents. The whole number is full of diversion for the young folks, and of considerable interest to those of larger growth.

It would be impossible in our space to name one-half the good things in *Scribner* for May. In an artistic point of view this number is one of the very best of the year. No less than ten of the foremost American artisis have contributed sketches and drawings therefor. The principal illustrated articles are: "Merry Days with Bow and Quiver," an archery paper, by Maurice Thompson; Edward Eggleston has a paper an "The New York Post Office"; there are two articles on artist life, one by Margaret B. Wright, "Bohemian Days" and one, "Camps and Tramps about Ktaadin. The serials, "Roxy" and "His Inheritance," are continued. Dr. Brewer has a beautiful article on the curiosities of "Bird Architecture," the first of the series. The most notable unillustrated articles are by Bayard Taylor, "An Impossible Story"; an essay, "Concerning the use of Fagots at Geneva," by L. W. Bacon. Dr. Holland makes the editorial departments, as usual, brilliant and interesting.

The Atlantic Monthly for May is a splendid number. Certainly there can be no question that as a purely literary magazine, the *Atlantic* is unexcelled on either side of the ocean. We have space to mention but half a dozen of the most striking articles in this number. "May Days," consisting of extracts from Thoreau's journal, is appropriate; "Recent Florence," by Henry James, Jr., and "From Ponkapog to Pesth," T. B. Aldrich, are charming sketches of travel; Mark Twain has a characteristic paper on "About Magnanimous Incident Literature"; "Some Recent Volumes of Verse" is a fine critical article by W. D. Howells; and Richard Grant White has another excellent paper on "Americanisms."

The departments are as enjoyable as ever.

The May number of the *Popular Science Monthly* even surpasses the usually high average of this magnificent scientific journal. The table of contents embraces "The Radiometer: A Fresh Evidence of a Molecular Universe," by Prof. Josiah P. Cooke, Jr.; "Personal Reminescences of some Deceased Savants," by Carl Vogt": "Evolution and Ceremonial Government," by Herbert Spencer, "How Some Words are Produced," by George M. Shaw; "Scientific Study of Human Testimony," by George M. Beard, M. D.; "The Growth of the Steam Engine," by Prof. R. H. Thurston; "Science and Mental Improvement," by Prof. Joseph Le Conte. These are but a few of the many interesting and valuable articles in this number. There is also a sketch, with portrait, of Prof. E. S. Morse, the dlstinguished American biologist. Prof. Morse studied biology at Cambridge with Agassiz. He is yet young, but his indefatigable industry, close observation and careful and logical reasoning predict a future for him more brilliant even than was that of his eminent instructor. His mind is eminently scientific, and we believe we see in him the great American *savant* of our day.

Littll's Living Age is a splendid magazine for teachers who wish to see the best things published by the European press. For fifty-two numbers, or 3000 pages, the subscription price is but $8 per yenr. Littell & Gay, Boston, are the publishers.

The Christiaa Union sends out the following, which we print with pleasure. We have space for one comment only. Mr. Beecher is a man whose services to truth, liberty, moral and intellectual progress have been so great that his every statement is entitled to the greatest respect and consideration:

AN EMPHATIC DENIAL FROM MR. BEECHER.—After the *Christian Union* had gone to press, Mrs. Tilton's not unexpected charges against Mr. Beecher appeared in the morning papers. We stop the press to quote from the New York dailies of Tuesday morning Mr. Beecher's instant denial of its truth. The statement of a self-confessed false witness will not lesson the confidence of Mr. Beecher's friends in him, and the general public will agree with the leading New York papers that Mrs. Tilton's statements and counter-statements have made it clear, to use her own language, that "it is a physical impossibility for her to tell the truth." The following is Mr. Beecher's telegram:

"I confront Mrs. Tilton's confession with explicit and absolute denial. The testimony to her own innocence and to mine which, for four years, she has made to hundreds, in private and in public, before the court, in writing and orally, I declare to be true. And the allegations now made in contradiction of her uniform, solemn and unvarying statements hitherto made I utterly deny.

"I declare her to be innocent of the great transgression.

"HENRY WARD BEECHER.

"Waverly, N. Y., Monday evening, April 15th."

An article on "Discipline in American Colleges," by Dr. McCosh, President of Princeton College, is to appear in the May-June number of the *North American Review*.

Publications Received.

Proceedings of the Iowa State Teachers' Association, Dec. 26, 27, 28, 1877. From the *Iowa Normal Monthly*,

Biennial Report of the Superintendent of Public Instruction of Iowa. From Supt. C. W. Von Coelln.

Report of the Public Schools of Missouri. From Supt. R. D. Shannon.

Annual Report of the Superintendent of Public Instruction of Wisconsin. From Supt. Edward Dearing.

Report of the Superintendent of Public Instruction of Louisiana. From Supt. R. M. Lusker.

Report of the Schools of Columbus, Ohio. From City Supt. R. W. Stevenson.

The poorest girls in the world are those who have never been taught to work. There are thousands of them. They have been taught to despise labor, and depend on others for a living, and are perfectly helpless. The most forlorn and miserable women on earth belong to this class. It belongs to parents to protect their daughters from this deplorable condition. Every daughter should be taught to earn her own living. The rich as well as the poor require this training.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR PRIMARY SCHOOL WORK. Edited by Mrs. H. M. SOLOMONS. [Bush St. Primary School, S. F.]

SUGGESTIONS FOR HIGH SCHOOL WORK.

Botany.

The importance of botany in a scheme of elementary education rests upon two facts. First: Of all objective sciences, it is the one whose material in endless quantity and vast variety, is everywhere furnished ready to our hands. Second: For a successful beginning, and even for a worthy attainment in it, no costly and cumbersome apparatus is needed. It thus seems to be, of all those sciences, the one best fitted for that early training of the eye to see, and for the reason to judge, which lies at the foundation of all scientific attainment. The suggestions in this article, and the ones which are to follow, are offered in the hope that they may facilitate the introduction into many of our schools, of a study which can be made at once so interesting to the pupils, and so valuable in its results. Feeling that "breaking ground" for a new study is the most formidable part of the undertaking, we have ventured to present the first steps with considerable minuteness of detail. For the later ones, outlines will suffice, which the tact of the teacher can vary or extend indefinitely. What is proposed, is *not* to present a treatise on botany, but a selection of such of its objects and facts as a school-child may see and verify for himself, and of such inferences therefrom as he may at least intelligently follow, if not actually discover.

I.

NOTE TO THE TEACHER.

The teacher will, of course, need some trustworthy text-book of botany at hand for reference and direction in more difficult points. Gray's Lessons in Botany, and Miss Youmans' Second Book of Botany, may be named as admirable helps. The first is the more comprehensive; the latter, fuller in detail of certain points. The first is a store-house of information, the last is an illustrated method of study. The class however, if properly led, will do better without a book than with one. A pocket magnifier, with two good lenses of fair size, the teacher will certainly need for his own study, and it will often be very serviceable in class. Let me suggest that its usefulness will be more than doubled if any kind ot mounting be devised for it—both that the observer may look through it and at the same time use both his hands to dissect or arrange the object; and also, that an object once favorably placed for observation may be retained there, that others may see it. A bit of slender iron rod, or of

very stout wire, smoothed and stuck upright into a 4x6 inch pine block, will furnish a standard and table. If then, a hole be bored through the two plates which make the case of the pocket glass, and accurately fitted to the size of the rod, so as to slide easily up and down, and yet stay wherever you leave it, you will have quite a serviceable instrument. A sharp penknife, and a pair of stout, sharp needles stuck into slender, wooden handles, will be all the dissecting apparatus needed. A bit of glass, say two inches square, laid on the block, makes a better surface to work on than the bare wood. It should generally be kept moistened with a drop or two of water to prevent objects from flying off while you dissect.

Now, once more, a word as to the purpose and aim of this whole study. It is first, *to see*, and after that to understand what is seen. The first point is the one which, he who would teach beginners must *never* lose sight of either in his own preparation, or in the work of his class. If he can teach them to *see* well and accurately, he will have done worthy work. The understanding comes later, and is to be built only on the sure foundation of observation and comparison. Technical terms should be introduced only as they are needed, always remembering that a strange and terrible name adds no real dignity to the thing studied, and often adds no knowl- to him who glibly uses it.

C. B. Bradley.

Oakland High School.

Mr. Editor: I will give you another figure and another construction, to prove the Pythagorean proposition. The square described on the hypothenuse of a right-angled triangle is equal to the sum of the squares described on the other two sides. Let ABC be a right-angled triangle, right-angled at A. (For convenience let AC>AB, although the construction may be adapted to a figure where AB>AC.) On CB, the hypothenuse, describe a square, CBOR, that shall include the triangle. From R let fall RH perpendicular to CA; from O, let fall OS, perpendicular to RH; continue BA till it meets OS in K.

1st. Prove HAKS a rectangle, (*i. e.* angles all right angles opposite sides parallel).

2nd. Prove the 4 triangles equal to each other ∴=ABC.

3rd. Prove HAKS = $\overline{HA}^2$ or $(\overline{AC}-\overline{AB})^2$.

4th. Prove $\overline{HA}^2$ + the 4 triangles or $\overline{CB}^2=\overline{AC}^2+\overline{AB}^2$. Q. E. D.

The pupils of most classes will find more than one way to prove the equality of the angles of the triangles. I have found it good exercise to call out their different lines of demonstration. L. E. T.

Oakland High School.

SUGGESTIONS FOR GRAMMAR SCHOOL WORK.

Penmanship.

Have each pupil furnished with a penwiper and a good blotter. In using the blotter, keep the same side next the hand. Do not allow the side used for blotting to become dirty, as it spoils the paper and injures the looks of the writing. Encourage the pupils to hold their pens somewhat as that represented on the copy-book. When writing in the copy-book adhere strictly to the copy work. Require four specimens each month, taken as follows:

Give to each pupil a clean sheet of good paper; on the first page, at the top, put such "heading" as you would for any examination. Then write all the capital letters from A to M on one line, and from N to Z on the second below. On the second below that, write the small letters from a to s, and on the next line from r to z, and also the figures from 1 to 0. Below this write four lines of poetry. Collect the

specimens, put them away carefully for one week, take them out and write the date, and the very same exercise that was written the week before. You now have the two on the same page, where they may be compared readily. The next week write the same exercise on the third paper; the fourth week write the same as a specimen below. Then compare the whole. The next month continue the capitals, small letters and figures, but take different poetry.

Teaching Spelling

A teacher who selects, with her class, five words each day from each of the lessons—reading, geography, and arithmetic, together with five words selected miscellaneously—will find that, if she writes them in a blank-book kept for that purpose, and has the pupils take the list also, there will be very little trouble to make good spellers in a few years. This would make about 4000 words *learned* during each year. Any other spelling that may be introduced as the class is reciting or studying may be considered as so much extra, but these twenty words must be learned each day, and recited by each pupil. Examinations must be had every week on the 100 words given during the week, and at the end of the month there should be an examination on all the words given thus far. When any pupil fails on any of the words, such pupil must do extra work until his spelling is absolutely perfect.

Analysis of Subtraction of Common Fractions.

Let it be required to subtract $\frac{5}{7}$ from $\frac{3}{4}$.

Operation: $\frac{3}{4} - \frac{5}{7} = \frac{21}{28} - \frac{20}{28} = \frac{1}{28}$. Answer.

Analysis:—We first reduce the fractions to a common denominator—that is, to the same fractional unit—because quantities having unlike units cannot be subtracted.

In this example we reduce the fractions to twenty-eighths, 28 being the Least Common Multiple of the given denominators, 4 and 7.

Thus: $\frac{1}{4} = \frac{7}{28}$; $\frac{1}{7} = \frac{4}{28}$;

$\frac{3}{4} = \frac{21}{28}$; $\frac{5}{7} = \frac{20}{28}$.

Here we find the fractional unit to be $(\frac{1}{28})$ *one twenty-eighth*, and as we have 20 of these *twenty-eighths* to be subtracted from 21 of these *twenty-eighths*, we say, $\frac{21}{28} - \frac{20}{28} = \frac{1}{28}$. Answer.

SUGGESTIONS FOR PRIMARY SCHOOL WORK.

FIFTH GRADE WORK—TRANSPOSITION.

The subject of transposition is too difficult for the fifth grade. Pupils of said grade do not understand enough about the construction of sentences, and modifiers of subjects, and predicate to do anything in regard to this subject. Those who do accomplish anything, do so more by memorizing the words of the teacher than from an understanding of the work.

GEOGRAPHY OF THE PACIFIC COAST.

All the geography of the Pacific Coast is too much for pupils of the fifth grade to learn. I think the most important questions on California, Oregon, and Nevada, would be sufficient, together with the other works assigned in geography, for any fifth grade to accomplish.

The Grube System.

Discussion is invited in this Depart men on the "Grube" method of teaching arithmetic.

Our course of study prescribes its adoption by all teachers, yet many disapprove of the system entirely. Some endorse it enthusiastically, and others again use it in part, adapting it to their own peculiar ideas.

Probably no system can be as successfully taught by others as by its author, who infuses his own personality into its execu-

tion, yet if there be as much merit in the plan as is claimed for it, it should be faithfully carried out.

Many teachers who do not now use the method would no doubt do so if convinced of no loss of success by making the change. We therefore earnestly beg all teachers who have used the Grube system to give the benefit of their experience to the Department, through the JOURNAL. Let us discuss its merits and its faults, if it have any, and we may come to some conclusion as to *how* to teach *Arithmetic* well in the low grades. H. M. S.

Reading

One of the greatest obstacles encountered in teaching reading to beginners is the facility with which they memorize the sentences on the charts and in the readers. To obviate this difficulty, many teachers require their pupils to read backwards.

As a test of the *ability* of the child to read the words and sentences introduced occasionally, this method is not open to objection, but as a regular exercise there could be nothing better calculated for the foundation of the miserable reading so much complained of throughout our schools. The great trouble is in the beginning; after the children know the letters, and can recognize at sight all simple words, they may be safely trusted to read the lessons in their regular order, and can be taught the proper inflections. To bring them thus far a plan is submitted which has proved eminently successful.

Select a word from the chart; "cap" for instance and print it upon the blackboard; teach it in the usual manner of showing the picture—the *real* cap; then the word, and next the letters. When these are mastered, let the succeeding word contain one new letter, as "cat," then "rat," "bat," "cup," *until the entire alphabet* is absorbed. Let these remain on the board, taking care in reviewing to point to the words promiscuously.

The chart may now be used, taking only such sentences as contain words which the pupils can read at sight. Lead them to understand the idea conveyed in the sentence and they will take up the proper inflection at once. Also transpose the words (using the pointer) so as not to read them too often in the same order.

When the pupils are ready to begin their books, pursue the same plan—thus: print on the board, "A sly hen." We will suppose this sentence to contain one new word, which the pupils now learn to read; and each new sentence (put one on the board every day) contains from one to three new words.

At each lesson point to the words, so as to form different combinations; for instance, we have, "A sly hen, can she fly?" "A bad dog, it bit a hen" "A big ox, let him go"; "A fat pig, can it run?" "A red cow, has she hay?" By using the pointer we make the children read thus: A fat hen can go. A sly dog bit a fat ox. A sly pig let a bad ox run. Can a big dog fly?

This plan keeps the scholars constantly on the alert, because they never know (precisely) what they are going to read. And dull children, who have not kept up with the class, are thus prevented from learning the lessons by heart. Books may now be placed in their hands; they will keep their place without trouble, and can be easily taught to give proper expression to what they read. As they progress, prepare advanced lessons, by printing all unfamiliar words on the blackboard, and drill in spelling and pronouncing. Then read the lesson to the class, making them repeat such sentences as require particular inflection. Above all, never allow pupils to study their reading lessons at home.

H. M. S.

Children should read *understandingly*.

Ungraded Schools.

One of the sorest evils in our country schools—the loose and superficial way in which the studies are pursued—is due to the migratory habits of the teachers. This vagrancy is the fault of the law, in vesting the appointment of teachers in a board of trustees, very generally incompetent to judge the value of a teacher's work, or to form any estimate of his abilities. When the millenium comes, teachers will be appointed by a professional inspector, who will devote his time to seeing that the schools under his charge are systematically and effectually taught. Then all the failures will have to leave the profession, and teachers, instead of being homeless vagabonds, will be honored and respected members of the community among whom they will spend all their days.

But the evil spoken of above may be partially remedied now. Professional pride should induce teachers to work with the same care and skill when they know they will not be re-engaged, as if they were employed for life. Professional dignity should prevent them from truckling to the insane anxiety of some parents to see their children pushed forward in the text-books. Yet too many teachers, either to gain a little cheap praise from those whose praise and blame are alike worthless, or because they do not care to trouble themselves when it is doubtful if their efforts will be appreciated, allow the children to drift aimlessly through their text-books, without any better result than the waste of time and the periodical gleaning of ducats by the teacher. You may enter dozens of country schools and find scholars who know all about United States history, but who cannot tell you if Sebastian Cabot was ever President, or if Grant commanded at Brandywine. They are working at problems in cube root or alligation, and cannot do simple division correctly. They have been through and through geography, but know nothing of the physical or political features of the State they live in. They blunder along in the Fifth Reader, underderstanding no more of what they read than if it were Sanscrit, when they cannot read intelligently in the Second. In short, all their studies are pursued in the same reckless way ; they study much and learn nothing. Worse than this, a few years of such trifling renders them almost incapable of learning anything.

Now, if teachers would only consider that a little, thoroughly learned, is better than a great deal run over ; that one cannot pour a quart into a pint measnre, and that a violent attempt to do so will only spill part of the pint that should be there, and render the rest of it turbid ; that the process of educating the child must go on. though other hands than theirs have the work to do ; that each one should so do his work that the next one may continue where the last one left off, instead of having to begin again from the foundation ; and that to fail to do their whole duty with their best ability and judgment is dishonorable to them, and injurious to the profession they belong to, and to the children under their charge. Then the ignorance of young men and women who have spent eight or nine years at school will be less amazing ; the schools will more nearly fulfil their purpose, and the teacher will be proud of the results of his work, and have a higher estimate of his profession, instead of feeling with mortification that he has received money for which he has rendered no equivalent.

W. Fred Bray.

Butte Connty.

We have just received the news that the Journal has been endorsed by the State Institute of Nevada, and by the County Institutes of Sacramento and Yuba. We shall publish the proceedings of these Institutes in our next issue.

THE PACIFIC

SCHOOL AND HOME

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LET US HONOR OUR PROFESSION.

BY PROF. G. V. LE VAUX.
(Nevada, California.)

In reviewing the events of modern history we cannot fail to notice that wherever education is prized above wealth, and the educator preferred to the mere money maker, there, and there only, are the people truly enlightened, refined, and happy—there are those who lead the world in the march of civilization, whilst "guiding their feet in the way of progress and peace." Good and learned teachers are a cause and consequence of enlightened national character. Hence the general admission that the esteem in which they are held is a good index of the intelligence of the people amongst whom they labor. In a wholesome state of society teachers are not compelled to exist on "starvation wages," nor do men offer them half a year's pay for a full year's work. "Every member of society," says Goldsmith, "should be paid in proportion as he is necessary; and I will be bold to say that schoolmasters in a State are more necessary than clergymen, as children are in more need of instruction than their parents. . . . . In fact, of all professions in society, I do not know a more useful or a more honorable one than that of the schoolmaster; at the same time, I do not see any . . . whose talents are so ill rewarded. . . . . I would make the business of teaching every way more respectable by increasing teachers' salaries and by admitting only persons of marked and well-tested abilities. . . . Masters and teachers—when they are persons of learning, reputation, assiduity—can not be sufficiently prized in a State."

Such were the words of one of the keenest observers of a recent generation, and they are as true and applicable to-day in America as when first written in Europe. It has been so much the custom of late to "be-laud" our respective school systems that we have at last become insensible to, or unconscious of, their many glaring defects, and hence we have let other nations shoot far ahead of us in *real* educational progress, as will be proved in some future article. Our State is certainly far in advance of many others, but every one knows that educational progress and the influence of the educational profession are far from being what they should be. It is a well-known fact that mere boys and girls can get first-grade certificates without ever having had a single day's experience as practical teachers. As a necessary result, the State is flooded with so-called teachers.

Then when they get employed they are only "hired for the term," which in the majority of cases is only six or seven months or less; and during the rest of the year they can get no professional work, and as a necessary consequence they have to live for twelve months on the pay received for six months. In some cases teachers are compelled by want to hire out as cooks, washerwomen, or tramp the country as peddlers, during the "long vacation," so as to get a means of living. Moreover, the people like change, and it seldom happens that a teacher remains more than one term in one place. Now I would ask any honest, candid man whether education can be in a progressive and satisfactory state under such intermittent arrangements? I know that no one laments these professional inconveniences more than our worthy and much respected State Superintendent, and no one would rejoice more to see them removed; but, of course, their correction is entirely outside his province. Such matters are subjects of consideration for the Legislature and the people, and to them we respectfully submit them, hoping in the near future for the general introduction of a more liberal educational polity—similar to that of Massachusetts, Canada, Australia, or the City of San Francisco.

Time will bring many changes, and, amongst the best, the improvements which teachers desire. In the meantime we owe a duty to our profession and the country. Let us appreciate and esteem our calling in proportion to its intrinsic usefulness and merits. If we do not value it, others will despise it and us. However, let us not show our estimate of it by assuming lofty airs, or by making undue pretensions; on the contrary, let us imbibe its true spirit with earnest humility, and while endeavoring to master its mysteries, devote our best energies to their right elucidation and practical application. Let our actions speak the feelings of our hearts. If an orator would have his audience feel, he must first feel himself; and if a teacher does not feel—and give proof that he feels—the value and importance of his work, can he reasonably expect others to do so? We often hear it said—"Teachers are not respected." But is it not almost as often true that teachers do not respect themselves; that they sometimes forget to act as gentlemen; that they themselves provoke the disrespect of which they complain? A teacher cannot be made respectable by Legislative enactment. He must make himself so. In every ordinary avocation of life a man who acts upon high principles, and shows that he understands and values his business, will invariably command respect. Nor are teachers and their work an exception to this rule. Let them first understand and value their profession themselves, and then employ all proper means to secure it a place not only in the esteem, but in the interest and sympathy of others. As things stand at present, the teacher and his profession both suffer from the want of more extensive and effective professional union of sentiment.

The profession of a teacher is a means to an end. It exists, not for the sake of the teacher himself, but for the interests of society. It is a calling indispensable to the progress of civilization and well being of mankind. It is his province to develop the mind, mould the heart, and form the character of the future citizens of our land. The right discharge of these duties is the only essential element of a country's prosperity and happiness, as well as the only true guarantee of liberty, order, and social stability. Teachers, let us not be slow to give evidence that we sympathize with these objects—that our hearts are in them, that our thoughts and aims do not terminate in ourselves alone, but in the present and future welfare of the rising

generation. Such a spirit, like heat in the atmosphere, will be diffusive and vivifying. Others will imbibe it, the indifferent will become interested, parents will become increasingly anxious for the education of their children, and children will become increasingly anxious to be educated. A teacher who folds his arms in slothful or careless inactivity, neither improving in knowledge himself nor advancing it among others, deserves neither sympathy nor respect.

The mutual intercourse of teachers—visiting each others' schools, meeting at regular intervals, in associations, for mutual improvement—contribute much to their professional success, personal enjoyment, and social intercourse. Professional friendships engender kindly feeling, excite zeal and emulation, increase self-reliance, skill, and usefulness, strengthen prospects of success, and improve social standing.

It is true that the circle of the teachers' daily labor is apparently narrow in immediate prospects, the results of his toil being somewhat remote; nor can it be forgotten that there is little variety in his employment—its monotony being broken only by examinations and short vacations. In fact it requires more than ordinary patience, perseverance, and benevolence to pursue such a vocation with unabated zeal and energy month after month, and year after year. However, the affectionate regard of the pupils and the sympathy and support of the enlightened part of the community will, to some extent, prevent discouragement. Moreover, as the faithful teacher gives the community more than he receives in return, he can always look forward to the end with feelings of more than ordinary pleasure and satisfaction.

The public school-house is the sole educational institute for the vast majority of the rising generation—the future fathers and mothers of our country—and the results of the teachers' labors therein may one day grace the occupants of the highest and most honored positions of social and political life. The consciousness of this fact is not the least of the teacher's rewards, for though remote and, to some extent, intangible, it is nevertheless absolutely certain. It is no small pleasure to the faithful teacher to know that, in the persons of his pupils he will live his life over again, many times repeated—that he has helped to form faculty, to fashion and create mind, to increase the mental wealth and material happiness of his race.

If we understand matters aright, the first, most immediate duty of teachers as a class should be to duly honor and appreciate their profession by constantly endeavoring to attain the standard of highest excellence; and their second duty should be to use their united influence in inducing the authorities to extend the limits and elevate the range of examination for admission to the profession, while requiring a certain amount of experience and proof of practical success from every candidate for first-grade certificates. When the teachers and the laws thus work together in behalf of higher culture, the supply of teachers will gradually become less in proportion to the demand, and as a necessary consequence those who are qualified and in successful practice will be more highly esteemed and more liberally renumerated, and our more eminent brethren will continue to adorn their profession and be no more seduced from its ranks by the superior inducements of other callings. These, we think, are facts from a philosophy so personal, professional, and practical that they should command the earnest attention of every thoughtful teacher. We believe we have hinted at improvements which may be ignored, but which if taken up in the right spirit and carried to logical, practical conclusions would ere many years elapse invigorate the efforts of every worthy teacher, enhance the rewards of continued

application, and add fresh attractions to every successive year of his riper experience, while ensuring greater benefits for the State and more honor for an educational system.

CHARLEY vs. SWINTON.

BY CHARLES M. DRAKE.

[National City, San Diego County.]

It's no use. Swinton and Charley don't agree. Charley is a big scholar, and knows a great deal, and sometimes gets very much vexed because other folks know so comparatively little.

"I don't like Swinton," said Charley, to me, one noon-spell. "Such fellows hadn't ought to be allowed to write books for other folks to study out of, until they know what they are about."

"What is the matter with which one of Swinton's books, now, Charley?"

"It is his Word Analysis. He didn't start it right, in the first place."

"How should he have started it, Charley?" inquired I, smiling.

"Why—, well—," said Charley, hesitating a little, "somewhat like you started our class, you know."

Here I felt a mild satisfaction at the thought that I was approved if Swinton was not.

"You see," continued Charley, "he should have put down a lot of pages full of words for us to dig out the roots of. Then he should have given us a lot more that we might find the kin-words of; then a great many more that we should classify according to their prefixes and suffixes."

"Why wouldn't the same do for all three of those purposes, Charley?" I inquired.

"Perhaps it would," said Charley, turning a little red; "but you know the main thing after all is to make us do the work, and give our own definitions, and classify the words ourselves. I'll bet we would make better definitions than Swinton gives, too."

"What is the matter with Swinton's definitions, Charley?"

"Why, they are wrong," said Charley, very positively. "And he don't stick to them himself, either. He says, 'An English primitive word or root is a word in its simplest English form,' and just below he says that *navigate* and *happy* are primitives in spite of *navy* and *hap*. And then he says that prefixes and suffixes are *significant syllables*, when in c-log, s-crawl, cat-s, h-ear-d, grow-th, who-se, and thousands of other words, they are not syllables at all; and many affixes, like over, under, super, able, and aceous, have two or more syllables; and some affixes do not have a meaning now whatever they might once have had."

"All affixes or words of two or more syllables are not simple ones, Charley; and most of only one syllable are really compound.

"I know that," said Charley; "but when he defines a derivative, why does he pay no attention to such words as *men*, *strive*, *got*, and *him*? There are lots of such words with internal vowel and other changes, but he don't seem to know it."

"He ought to have had you to assist him, Charley," said I a little sarcastically.

Charley paid no attention to my suggestion, but continued: "And look at his lists of English (?) prefixes and suffixes! More than half of them are Latin, and many very important ones are left out, though he finds room enough for others that are very little used, or are used with but few words."

"That is true. But you must remember, Charley, that the most common affixes are, generally, the hardest to define."

"And you told me," continued Charley, "that -let and -ling, -ee and -er, and -ar and -ard, didn't come from the same words, and I am sure they do not always mean the same, yet he puts those and other affixes together as if they were identical;

while others, that really are alike, he separates. I think we need a new Word Analysis."

"But do we need any book on Word Analysis in our common schools?"

"No; I don't suppose we do," said Charley, after a moment's thought. "We might have exercises in our readers on word analysis. You teach spelling and grammar, and word analysis out of the reading books, and I don't see why we need other books to bother with."

"Good text-books are great helps, Charley. But I do not know that the most of word analysis is important enough to require a separate book in our common schools. I have sometimes thought that a little dictionary might be put in the back of the Fourth and Fifth Readers, that should show the pronunciation, the root-word and the meaning of most of the words used, without taking up much space, but perhaps that would require more labor to arrange than most people seem to think necessary for our text-books."

"But why do they use so many of Mr. Swinton's books when they are so very poor?" inquired Charley. "His history is very uninteresting, and filled with dry dates and battles with this one fighting that one, and how many were killed and wounded on each side. It isn't half so nice as those big books on Sociology of Spencer's that told what people thought and how they lived and did."

"I think his history is very poor, Charley. I never knew a pupil or teacher that liked it."

"And there is his Language Lessons, too, that they teach out of in the next district."

"Yes; and he has a Geography, too, Charley."

"Well, there's one consolation," said Charley; "I don't believe even Mr. Swinton could make a much poorer geography than the one we are using."

"Ah! Charley," said I, rising, "you are like too many teachers, who grumble at the text-books, when they themselves are the most to blame, for every teacher should be his own text-book."

SCIENTIFIC STUDY OF HUMAN TESTIMONY.

The Unreliability of Memory.

BY DR. GEORGE M. BEARD.

[In *The Popular Science Monthly* for May.]

Some experiments that I have made with the memory, the full details of which are to be published elsewhere, give results that are of the highest significance in their bearings on the study of human testimony. These experiments were modeled in part on the familiar "Russian game," so called, which is sometimes practised by the young as an amusement, and which consists in telling some short story to a party, who at once repeats it, or all that he remembers, or thinks he remembers, to another party, and so on through a series of half a dozen or more individuals. In order to make the experiment a fair one, and of value in the study of memory, the story designed as a test should be short and simple, and should be written out and clearly stated to the individual who stands second in the series. The second individual takes a third individual into another room, writes out the story from his recollection and reads it, the third party does the same by the fourth, and so on. When all the stories are compared, at the close of the experiment, this general result is invariably reached:

1. No two of the stories agree. All have departed more or less widely not only from the original, but from the account which they themselves directly received from the person next to them in the series. No one has succeeded in remembering just what

his neighbor told him, although he wrote down instantly what he heard.

2. In some of the stories interpolations occur, as well as omissions. These additions are sometimes of an important nature, seriously modifying the thought of the original, and, what is more strange is, that these are frequently believed by the authors to be parts of the original; they are sure that they have given only what was given to them, and are astonished and incredulous when a comparison is made between the original and the others in the series. Not only the phraseology but the thought is changed.

Another method of experimenting with the memory is to repeat the same story to a number of individuals separately, and then, after all have written out by themselves without conference what they can remember, to compare the results.

Experiments of this kind, it will be observed, are made under every conceivable advantage: there is no haste; there is no excitement, at least after the novelty is over; there are no distractions; the power of recollection of words and facts is at its best. The accounts are written down instantly as they are received; they are consequently the virgin impressions on the brain. I have made these experiments with intelligent, liberally-educated persons of both sexes, and have repeated them sufficiently often to demonstrate that the results noted here are laws and not exceptions; and it is as clear as any fact in science can be, that words like Boswell's "Life of Johnson," and Goethe's conversations with Eckermann, and Luther's "Table-Talk," and indeed all conversational literature, must be regarded as representing the tendencies of the heroes of the conversations, the general drift of their uttered thought, rather than the precise language employed, or the order in which the statements were made. Certain phrases often repeated by an eminent man in the presence of his friend may be in some instances literally transcribed, especially if they are of an original and striking character; but exact details of long conversations are never recalled—except perhaps by certain prodigies of whom I shall presently speak. Interviewing reporters are sometimes unjustly censured for intentionally interpolating errors in their published statements. The day following an interview, or even five minutes after, neither party can tell precisely what has been said, although sufficient may be remembered for practical needs. Conversation can only be accurately reported where it is taken down at once as the words are uttered. Conversations reported weeks, months, and years after their occurrence, must be not only wide, but very wide, of the facts; and, besides the positive omissions, there must be, in all cases, interpolations or additions both of fact and of language which the author is confident, and very likely has all along been confident, that he received from the original. The subjective is confounded with the objective, and there is no way by which they can be distinguished.

These experiments bear directly and obviously on history and on legal testimony, they show the hollowness of much of what is called historic evidence, and the uselessness of the attempt so often made in court to force or coax witnesses to give the exact language used by them, or to them, or in their presence. I once told a short story to a person who has the most remarkable memory both for words and facts of any one whom I have ever met, and requested him to at once repeat it. He attempted to do so, and not only changed the phraseology, but left out one of the most important details. In some cases I have requested the subjects experimented on to wait a week or ten days, and then to write out what they remember, or think they remember, of what was told them. In all

cases there will be variations from the original of greater or less importance, according to the nature and complications of the story, and the special memory of the individual. One person, a scholar of unusual verbal memory, after carefully studying a short story, consisting of less than one hundred words, and waiting ten days, made eight blunders.

In elaborately comparing the recitations of experienced and eminent actors and actresses with the originals of plays, I find that serious verbal changes, both of omission and interpolation, are constantly made. Dramatic teachers say that pupils cannot accurately retain a long part; that blundering is everywhere the rule. Shakespeare, in his choicest passages, is almost always, unintentionally if not unconsciously, altered by his most skilled and practised interpreters.

The statement made by Renan in his latest work, on "The Origins of Christianity," that persons who do not know how to read and write have a better memory for oral communications, is not confirmed by my experiments thus far; scholars and thinkers remember words and ideas better than the ignorant and unreading classes. Those who do not know how to read and write find it hard, according to my experiments, to retain in memory a short and simple sentence, even for an instant. Not only memory of words, but of facts and objects of common observation, is more limited than is supposed.

In another series of experiments I tested the power of recalling the objects that fell upon the vision. If a number of persons enter a room containing a number of articles of furniture, with various colors on the walls and in the carpet, and in which certain complex gestures or motions or manœuvers are made by some one, there will be no agreement in their reports, even if made at once, and no report will be accurate.

For years philosophers and critics have been asking how long a time is required to make a myth. The answer is found in these experiments. A myth can be made in a minute. These interpolations and additions to reported conversations, of the truth of which the reporter, at the time and subsequently, is so fully persuaded, that only by a comparison with the written original can he be undeceived, are the products of the reporter's own mind—the unconscious substitution of the subjective for the objective words and phrases and thoughts of his own brain, which, perhaps, have long been parts of his mental possessions, rise up like ghosts in the midst of his narration, throw aside the original words and phrases and thoughts, and take their places so perfectly and so harmoniously that the intrusion is not suspected.

It may be said—indeed, it is often said—that memory is a distinct and narrow faculty, in no way correlated to other and more important faculties, and that its perfectness or imperfectness has little relation to the cerebral force. Even if this view of the nature of memory were the correct one, it would not invalidate what is here claimed of the relation of memory to human testimony. But this theory of the nature and office of memory to human testimony is not the correct one; it is opposed to all that is known of the brain and of its functions, whether studied physiologically or psychologically. Memory is simply a register of a small fraction of the impressions made on the brain; there are, therefore, as many different kinds of memory as there are different faculties or combinations of faculties. Memory is a measure of mind; but, as there are as many varieties of memory as there are varieties of talents in man, the memory of any man can only measure the talent peculiar to himself. We remember what we have a capacity to comprehend. Any man, it has been said, is

willing to admit that his memory is poor, but no one will admit that his judgment is poor; and yet judgment is largely the result of memory. One may have a good judgment in some departments, but a very poor judgment in other departments; but, in those departments in which the judgment is good, the memory must also be good.

The relation of memory to mind is illustrated, if not demonstrated, in the early and late history of infant prodigies, such as blind Tom the musician, Colburn the mathematician, and the famous "boy orator." An analysis of the mental powers of any of these prodigies brings out these four facts common to them all: 1. Extraordinary memory in some one department; 2. Correspondingly extraordinary genius in that department; 3. Marked and unusual deficiency of other mental qualities, amounting in some instances to idiocy; 4. Decline of their special gifts corresponding to the development of other faculties on reaching maturity. "In monstrosities Nature reveals her secrets;" the physiology of mind, the general relation of mind to brain, and the relation of memory to mind, can all be studied effectively through infant prodigies. In no class of beings are the limitations of the human brain so thoroughly demonstrated as in these very prodigies that are supposed to illustrate in a marvelous way the capacities of intellect; all their special endowments are bestowed at the price of general endowments; the ordinary is sacrificed to the extraordinary. If they ever mature and become well-balanced citizens, the particular genius that made their childhood famous must correspondingly suffer. Even the average child, as we have seen, loses its memory in certain directions as it advances to maturity; hence the common but erroneous belief that the memory of children is better than the memory of adults. In truth, average children remember far less in quantity than adults, and they remember different things according to their age and taste. With children as with adults, and as with prodigies, the memory, scientifically studied, is an exact measure of mind, and in all, old and young, its limitations are so great as to impair most seriously the value of most of human testimony, even in matters of everyday life; while in all science, or the capacity of the human brain for observing systematized knowledge, for thinking and for remembering, is so limited that the world must defend, and practically, in the face of all the teachings of logicians and authorities on evidence, does defend, and rests its faith exclusively on, the testimony of experts, and in claims of new discoveries, especially against antecedent probability, on the testimony of a few only, and those of the very highest character—experts of experts—the opposing testimony of millions and millions of non-experts, though concurring and including the best and wisest of mankind, through all the ages being justly regarded as worse than worthless.

SCHOOL STATISTICS.

The following lines, from an Eastern literary weekly, were sent us by Miss JENNIE MCMENOMY, of the Sacramento Grammar School:

'Twas Saturday night, and a teacher sat
  Alone, her task pursuing;
She averaged this and she averaged that
  Of all that her class were doing;
She reckoned percentage, so many boys
  And so many girls all counted,
And marked all the tardy and absentees,
  And to what all the absence amounted;

Name and residence wrote in full,
  Over many columns and pages;
Yankee, Teutonic, African, Celt,
  And averaged all their ages,
The date of admission of every one,
  The cases of flagellation;
And prepared a list of graduates
  For the coming examination.

Her weary head sank low on her book,
And her weary heart still lower,
For some of her pupils had little brains,
And she could not furnish more.
She slept, she dreamed; it seemed she died,
And her spirit went to Hades,
And they met her there with a question fair,
"State what the per cent. of your grade is?"

Ages had slowly rolled away,
Leaving but partial traces,
And the teacher's spirit walked one day
In the old familiar places.
A mound of fossilized school reports
Attracted her observation,
As high as the Statehouse dome and as wide
As Boston since annexation.

She came to the spot where they buried her bones,
And the ground was well built over,
But laborers digging threw out a skull
Once planted beneath the clover.
A disciple of Galen wandering by,
Paused to look at the diggers,
And, picking the skull up, looked through the eyes,
And saw it was lined with figures.

"Just as I thought," said the young M.D.,
"How easy it is to tell 'em"
Statistics ossified every fold
"Of cerebrum—cerebellum."
"It's a great curiosity, sure," said Pat,
"By the bones can you tell the creature?"
"Oh, nothing strange," said the doctor, "that
Was a nineteenth century teacher."

—*Anon.*

TRAINING IN THE USE OF ENGLISH.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

PAPER NO. II.

To proceed now more particularly to written compositions. Most young persons regard the writing of an original composition as the most irksome task in school. It is so regarded because they have not been trained in the right way for the exercise. A common mistake formerly was to give out abstract subjects, such as "Happiness, 'our being's end and aim'"; "Contentment, 'poor and content is rich, and rich enough'"; "Hope, 'heaven's last, best gift to man'"; all which and many similar subjects I was obliged to cudgel my brain upon in my boyhood. Teachers have long since seen the absurdity of this course.

Besides a continuation of some of the methods already recommended, it is an excellent plan, when pupils are old enough to write compositions, in order to render the first steps easy, to select some simple and interesting piece of poetry from their Reader, and tell them to change it to prose. Next, taking another piece, to do the same, adding to it some circumstances of their own invention. An interesting way of varying this exercise is to select a poem full of incidents which might happen anywhere, and locate the same in your own town. I remember this being once done with the "Diverting History of John Gilpin," who was made to take his famous ride on the Bush street road out to the Cliff House, where his wife was waiting for him, thence back to the city, and to the barber's shop under the Russ House, at which place

"Where he had got up
He did again get down."

The introduction of familiar California names into the old ballad had a very diverting effect.

Compositions in the form of a letter are readily undertaken by pupils of a certain age, because they think so much is not expected from them. The letters of the young are generally interesting, because they are supposed to be written to some dear friend to whom they are willing to say what they think; they therefore talk on, which is the perfection of letter-writing; they speak upon subjects which they understand, and in which they are personally concerned, and not on matters out of their range; the style is therefore likely to be

simple and natural. Ask them to write a letter (teaching them how to fold and direct it) to a friend of their own age—giving an account of their school; of the manner of spending a holiday or the vacation; describing a visit to the country; a ride to the ocean; a fishing or sporting excursion; a picnic; a visit to any natural curiosity; relating any incident within their own experience, or any event which has happened of general interest.

Once in a while, have an *impromptu* exercise in composition. Give a class fifteen or twenty minutes to write all they can think on some topic; stop them punctually at the end of the time, and spend a little while in hearing them read what they have written. Do not be deterred if many fail at first; persevere, and you will soon be surprised at the excellence of some compositions, although so quickly prepared. The exercise is very beneficial in practising pupils to think quickly and to execute promptly. It acts as a spur to the mind. Among subjects which I have given out on such occasions are—"Now or Never," "More Haste, Worse Speed," "Description of a Hot Day," "or "Of a Cold Day," "Try, try again," "What I Think." Once I gave the members of a class fifteen minutes in which to draw up three patriotic resolutions; and some were better than most of those read at political meetings, and constituted a platform on which I should be very willing to stand—and be elected.

It is a little remarkable that pupils do not like to select their own subjects; they prefer that one should be given them, and as it is frequently difficult to chose such as are likely to interest a class, some suggestions may be in place. In the young, the imagination is active, and they will probably be interested in exercising it on such subjects as "My Voyage to the Polar Regions," "My Fight with a Grizzly," "My Voyage up the Nile or Amazon," "Travels in the Desert of Sahara," "A Storm at Sea," "Pictures in the Fire," "Robinson Crusoe," "An Adventure in California," "People I should like to see," (one of these always used to be Washington) "What I should like to be," to be followed by another composition on "What I should aim to be." Read a short fable—one of the very best you know—as a model, and tell the class to invent a fable, with a good point to it, representing the lower animals as possessing reason, or inanimate objects as endowed with life and intelligence. I have known some quite beautiful and original fables produced as the result of this exercise.

Give out some subjects addressed to the affections, as "The Joys of Home," "Thanksgiving Day," "Merry Christmas," "Old School Mates," "Simple Pleasures the Best," "The Flag of Our Union," "The Patriot's Vision," etc.

Others, as incentives to strive after all excellence, as "Never give up," "By time and patience the leaf of the mulberry tree became satin," "They can conquer who believe they can," "Learn to say *No*," "Excelsior," etc., and ask each one to give an account of the sermon he may hear the next Sabbath.

It is well, when the class is more advanced, to call upon members to make biographical sketches, giving them for subjects those great and good characters whose names are "familiar as household words," and with whose lives every well-informed person ought to be acquainted. Write upon small pieces of paper the names of renowned travellers, inventors, patriots, philanthropists, rulers, orators, poets, novelists, or artists, etc., according to the study which your pupils are pursuing, and let them determine, by drawing, which name each one shall have. In this way you will have a number of interesting biographies read in the presence of the whole class. Supplement the information thus obtained by

any additional interesting particulars which you may gather from the class or relate yourself.

In high schools, the object in writing compositions is to develop the power of thinking. As merely specimens of subjects which may be given, I will mention "The Good Old Times compared with the Present," "Proverbs and their Meaning," "Why should a man love his country?" "Perils to which our country is exposed," "The power of music," "How far ought a girl to be required to study mathematics?" "Distinction between Wit and Humor, or between Imagination and Fancy, with illustrations," "Why is Shakespeare called the greatest poet?" "Whom do you consider the greatest female poet, and why?" For forensics—"Effects of boat-racing on students," "In what respects is man superior to woman. In what is he inferior?" "Parallel between Elizabeth and Victoria," "Cavour and Bismarck," "Cromwell and Napoleon III," etc. It is important to have the compositions connected with the studies which the class is pursuing. In the study of English literature a very pleasant and profitable exercise in language is to have every pupil give orally an extract from the author whose works the class is studying, and now and then let them ask one another the name of the author whose lines they quote, or whose works or characters they mention. Even the old-fashioned game of *capping verses* is not without its uses.

The great difficulty to the young in writing compositions is the want of ideas. Most pupils sit down to write without having expended a moment's thought upon the subject, and are surprised at not having anything to say. How could they expect to have? Can a lawyer make an argument who has not laid out any plan for it? The teacher should discipline his scholars to ask all sorts of questions concerning the subject-matter. Let him write upon the board the questions suggested by the pupils, leading them by his remarks to think of other questions, whenever they seem to be at a loss for them. Let them understand that this is the preliminary work, absolutely necessary to be done in order to be able to write the composition at all. For months after commencing exercises of this character, pupils should be required to prepare and hand in the analysis or outlines of the composition, from which it is to be written, and this analysis should be as much a subject of criticism as the composition itself. No preliminary outline is possible of an imaginary subject. The imagination of each scholar must be left to work "its own sweet will."

One word with regard to the correction of compositions. The pupils are supposed to be acquainted with the rules for using capitals and with the principal rules for punctuating.

Let them copy and preserve the following directions for writing compositions:

Write on a sheet of letter-paper, leaving a margin of an inch on the left of each page for teachers' marks.

c	denotes an error in regard to capitals.	
p	"	" " " punctuating.
s	"	" " " spelling.
g	"	" " " grammar.
∧	"	" omission.
r	"	a repetition.
un	"	unnecessary words.
w.w	"	the wrong word.

Write plainly and neatly. Revise composition carefully before copying it. Fold it lengthwise, and on the back, across the top, write your name, class, and the subject of the composition. Additional merits for handing in the composition punctually.

At a more advanced stage, marks may be added to those which I have given, to indicate violations of the rules of rhetoric.

The teacher must never correct the compositions himself. Notify the pupils that all errors must be corrected by themselves,

and with ink, and all words misspelt must be spelt correctly at the end of the composition, and that no credits will be given until all this is done.

FRIDAY AFTERNOON.

BY CHARLES H. SHINN.

[Niles, Alameda County.]

Long the shadows on the floor,
And the tired ones restless grow:
"Children, toil a little more,
So to reach the hour of four
With an honest week to show."
Then the school-room hushes so
That we hear the cheerful breeze
Shake the maple's scarlet keys,
And the portly, belted bees
Murmur soft and low.

By the door a frightful sound,
There the trustees rap and pound,
Greet the teacher with a grin,
Doff their hats, and venture in,
Tip their chairs back on the wall,
Watch the scholars, one and all.

Speaking! Fat boy on the floor,
Trustee's son, and rather pale,
Gestures never made before,
Knows his piece, and will not fail;
"Make your Mark," the title is.
He's concealed a piece of chalk
In his dexter hand—with this
Predetermined not to baulk—
Soon he turns with sudden stride,
Marks the board from side to side!
Looks relieved and rather proud—
Smiles among the merry crowd.

Next, a little maiden stands
On the floor, with folded hands;
Then she whispers "Babie Belle,"
As an angel might, so lowly
That the picture rapt and holy
Filled our eyes with misty rain,
And our hearts with gentlest pain,
Owned the poet's dreamy spell.
Spoke the maiden—hidden weeping
Down the girls' line accord keeping,
And I thought of saintly flowers
Kept by memory long and well—
Wallflowers in the quiet places,
Pansies with their winsome faces,
And the sweet aërial graces
Of blue bells in twilight sleeping.

Tableaux, singing, short essays,
And unpublished little plays;
Speaking of all lengths and shapes,
Class of girls reciting capes,
Class of boys on famous dates;
Last of all the Thirteen States—
Thirteen flags, and thirteen girls,
Waving banners, tossing curls,
Patriotic stanzas chanted,
And the flags in union slanted!

Ah! the solemn stroke of four!
Tap the bell, and out they pour,
As a river long held back,
Foams and murmurs on its track.
And a few, with books to change,
Round the teacher's table range.
Soon the last good-nights are said;
Up the winding path they go,
And the school-room, dark and low,
Seems to mourn the vanished glow,
And the day is nearly dead.
Then the little path I follow,
In the clear eve bright and cold,
And the clouds, with fold on fold,
Round the crimson west have rolled,
In wierd height and shining hollow.

What shall to-morrow bring to me?
In the deeps of mighty woods,
I shall search the solitudes;
Birds and flowers and happy moods
Shall my dear companions be.
I shall learn at Nature's knees,
Underneath the ancient trees,
On pale heights of royal pines,
Where the sun forever shines,
And in places cool and stilly
Where the fern leaves woo the lily,
And where speckled croppings show,
There my geologic hammer
Shall awake a curious clamor,
For, wise Nature, I would know
Every lesson that you fold
In your palace strange and old,
And my daily work shall be
Better for my love of thee.

How quickly children grow up in our dwellings, and how, all unnoticed, traits of character are formed, until before we think of it there stands a grown-up child, ready to go forth a blessing or a curse.

TEACHING—ITS THEORY AND PRACTICE.

BY JOSEPH O'CONNOR.

[Principal of the Washington Grammar School, San Francisco.]

An address delivered before the Normal Class established for the unexperienced teachers of the San Francisco School Department.

The style of teacher-making in vogue in California is a result of the general belief that a person who understands a subject is qualified to teach it.

Persons entering the profession are selected by their scholarship only. No plan could be much worse for the interests of the pupils and of the teachers themselves. I believe and I think all who have made teaching a study will agree with me, that when a person has acquired the most profound knowledge of a subject, *unless he possesses skill in communicating that knowledge, and in managing the young mind,* he is not yet half qualified to teach.

WHAT EDUCATION IS.

The main object of education is intellectual development. The aim of the teacher is to bring about this development by imparting useful information ; by leading the child to a further knowledge of things with which he has already become acquainted through his perceptive faculties; by correcting false impressions already acquired, and finally, by comparison and experiment, teaching him to reason up to proper conclusions.

WHAT THE TEACHER SHOULD LEARN.

The principal business of the teacher, then, is to learn how to communicate knowledge, and how to train the young mind to think for itself. Every teacher should also know how to govern his pupils, and how to form good habits in their minds. He must understand the child-mind as a skilful farmer does his land. He must dig and level and weed before he can expect a crop. He must not, as a rule, plant a second crop on the ground before the first is ripe and harvested. And, like the farmer, he must occasionally do a little summer fallowing, in other words, "give the mind a rest."

TEACHING THE SCIENCE OF MIND.

To sum up : The teacher of commencing pupils must first find, as nearly as possible, the calibre of his pupils' minds' being at the same time very careful to avoid judging their capabilities by his own. Then he must remember that his business is to assist the natural growth of those minds, by steering them properly, and helping them over the stumbling-blocks. And while he must keep his pupils perpetually employed, he must above all things avoid going too fast, and considering them capable of understanding everything he is capable of explaining. He must start with their minds and keep with their minds, leading and instructing, but never going too far to be followed. Teaching is a science—the science of mind cultivation.

WHAT IS NOT TEACHING.

It is not teaching to cram the memories of children, and neglect their understanding. It is not teaching to attempt to convey information to a small child in language so elegant that he cannot comprehend it. It is not good teaching to tell over a "Course of Instruction" *once* during the year to a class, being nervously careful to avoid touching the work of the grade below or the grade above. It is not good teaching to continually set tasks, without explaining beforehand what is most important about them, and how they should be studied. It is not good teaching to spend more time in examining than in giving instruction. It is not good teaching to explain a subject but *once,* no matter how well it may then be understood. Teachers forget important matters after having heard them explained a dozen times ; how can children remember what they hear but once ! Repeat ! repeat ! repeat ! Do not imagine that nearly all children are stupid.

Take into account *your* opportunities and maturity and you will find yourselves as stupid as the average "lazy little dunce" who never, in your opinion, does half what he could and should do. It is not good teaching to spend the entire year preparing your class to pass on Mr. Stone's, or Mr. Mann's, or Mr. Any-one-else's examination questions. Prepare your scholars for what they must encounter *after* school life, and they will do all the better at the examinations.

TO HAVE GOOD ORDER.

It is not right to let your class get into disorder, unchecked, when you are feeling jolly and indifferent. It is not right to send for the Principal to punish half your class for doing, when you feel miserable, the very things you smiled at when you were jolly and indifferent. It is not right to expect parents to understand school rules unless you let them know what those rules are. To have good order: 1st. Make up your mind what it is; 2nd. Keep the children constantly interested in their work; 3rd. Get the parents in order. By this, I mean—get them to understand the rules, and to respect you and your school; 4th. Be as fair as if you were every morning sworn to do justice for that day; 5th. Act as you wish the children to act; 6th. Avoid sarcasm.

Do your entire duty before you punish children for neglect of theirs.

REWARD.

Twenty Dollars Reward! for every teacher of not more than a year's experience who can obtain over fifty per cent. in an examination on the points just given, one month from date.

SOME HIGHLY IMPERTINENT QUESTIONS WHICH YOU ARE TO ANSWER MENTALLY.

How many of you have read and could pass a good examination upon the Rules and Regulations of the Board of Education? How many are certain you can and do keep your Roll Books correctly? How many have programmes by which you work? How many are in the habit of studying beforehand the lessons you give your pupils? Do any of you hate teaching, and love 3 o'clock? Are you then perfectly honest in continuing to teach? How many of you are at this moment mad with me?

SCHOOL ETHICS FOR MODERN STATESMEN.

BY J. M. EDDY.

[Eureka, Humboldt County, Cal.]

No. I.

It is a common observation with the people of America that such and such persons have not enjoyed the advantages of a liberal education, but are nevertheless "well-informed" or "posted." And it is the commonly received opinion that well-informed persons make the best class of citizens. Nor is it our intention or desire to dispute this natural and correct supposition. But we may reap a harvest of sound conclusions from this undisputed fact, that will be of great service in shaping the education of the future. That a large percentage of those who enjoy school advantages do not swell the ranks of our noteworthy and influential citizens, is as self-evident as that other fact—that a large proportion of the brightest lights in our history have sprung from the class that enjoy in the least degree the opportunities for culture. Now this knowledge should have great weight in the determining by educators of what the future school course shall consist.

Apropos to this subject the query may be ventured, What *is* a well-informed man? Or, if being posted is a desirable qualification to a citizen, how can we post ourselves? In the common acceptance of the term it does not necessarily mean a scholastic or erudite person, but rather one

who is marked by a strong common sense, added to which is a self-taught knowledge of men and affairs, and a certain self-poise which admits of the habit of looking into things independent of outside guidance. Usually, the well-informed man is a diligent miscellaneous reader, and understands the principles of government and the tenets of opposed parties sufficiently to vote intelligently and counsel wisely. Moreover, he possesses enough of the varied and useful knowledge of the world to allow of his talking intelligently on all subjects that are likely to come within his sphere, thus fitting him, not only for the highest standard of citizenship, but for a worthy friend and neighbor, a judicious counselor, and an entertaining member of society.

How to manufacture well-posted citizens, then, is a problem which it must be the duty of educators to solve; and if it can be demonstrated at our next Centennial, they will have accomplished a noble work indeed. In this endeavor the printing press must be his great confederate. The press and the teacher are the *gemini* that shall march arm in arm to renewed conquests, rejoicing together at the demolition of each additional fortress of ignorance. In a Republic like America, where suffrage is now almost and likely to become quite universal, it is of the gravest importance that each individual should in some way be instructed in the principles of free government. If there is any danger which, more than all others, threatens the stability of our institutions, it is the ignorance of the people concerning their own government and laws. It is a sad reflection on the intelligence of our people that they are so easily led by demagogues. And if that blest epoch ever arrives when no citizen in our broad, free land will blindly submit to any one's leadership, then will there be neither danger of corruption or rebellion, of centralization or decentralization. Perhaps in no other civilized country has incompetence been granted so much power in governing, and certainly in no other leading power, have there been fewer precautions taken against the spread of ignorance, or fewer efforts made by government to enlighten the enfranchised people. If our freedom is more unrestricted, the more need have we for universal intelligence; if our government is based on broader principles, the more use have we of broader information; if our laws are more liberal, the greater the demand for liberal instruction. The Oriental despot, who wields the power of life and death over many millions, can well afford to keep his subjects unlearned, for on their ignorance he rests the absoluteness of his dominion; but, in America, where the spirit of our laws is elective, and it devolves upon the people to govern themselves, it is essential that the people be intelligent in order that they may govern wisely. Where the subject-class is ignorant, absolutism may be the best form of government, but if so, it is obvious that where the government is elective, the whole people must be intelligent. In all stable governments, it will be found on investigation, the governing class is the enlightened class. What dire need have we then, where the whole people govern, of a system of education that is "thorough, radical, and complete!"

When a State establishes a system of public instruction, its primary intention is to elevate the standard of citizenship, and whatever ulterior motives may have contributed to this establishment, we must not lose sight of this main object. And right here, before going into the consideration of those elements of learning which we consider efficacious in the success of our common schools, we wish to call attention to a single fact which, if we fail to consider, will inevitably lead, as heretofore, to errors of judgment and misconceptions of the

true aim of public education. Schools have been too long conducted on the supposition that they are established for the development of individual talent or the training of faculties in individuals deserving of credit. As teachers, we too often gauge our success by the effect our efforts have had upon individual members of the school. It must be borne in mind that government should take no interest in us except as gregarious beings. As individuals, as single atoms of the great throng of humanity, we must not expect to receive governmental consideration. But as associated parts of the whole mass, we may justly expect our share, and that only, of whatever the government has to bestow. Hence, in education we should pay little heed to those branches of learning, or those methods of training, that conduce to private success only, and put more stress on aught that will lead to the welfare of mankind in general. Thus, government should not attempt to educate Smith in a way that he may attain individual success, accumulate a fortune, or gain lasting renown, but it should try to make him, in common with Jones, Brown, and all others, a self-supporting, intelligent citizen, and a useful member of society. Special training for individual success should be at the expense of that individual rather than at the expense of the State.

No popular government is complete, then, that does not include a system of education that is thorough, universal, and impersonal. To be abiding, it must guarantee information to all the people. It must enforce its right to instruct them as it enforces its right to govern them. It must elect a standard of intelligence, and insist upon the elevation of all to that standard. The selection of that standard is a work in which educators should enlist all their judgment and discretion. That standard should be the common school course of the future.

It is marvelously strange that, in a Republic like ours—we cannot avoid recurring to this defect of our government—where all are allowed the exercise of perfect freedom, where each person possesses so much power for good or evil, where, by popular suffrage, each must shoulder a portion of the responsibility of national policy, no provision is made for the enlightenment of the populace. It was an unpardonable oversight of its founders and subsequent conductors that the government has taken no interest in the educational status of its growing sovereigns, an oversight for which many poorly-supported "bureaus of education" will not compensate. How can a government afford to establish and maintain an expensive system for imparting intelligence if it makes no provision for the quality of that intelligence? How can it expect the true devotion and interested care of its citizens to be exercised in its behalf if it makes no return by warranting them an intelligent judgment to exercise? An appropriation of money or donation of public lands is of no avail unless an economical expenditure of it is demanded, for a given object. The eternal truths that underlie the foundations of our government can only be perpetuated by a rigid enforcement of a knowledge and regard for those principles upon the people. To that end the Federal Government must, sooner or later, by constitutional provision, demand the education of all her citizens. She must demand that every teacher be a statesman and every pupil a student of political economy. Therefore, let every statesman—a real teacher must become a real statesman—and every patriot pledge his best energies to the elevation of the people. Let him not falter or cease to hope till our enfranchised people are rescued from the bondage of ignorance, and safely entrenched within the citadel of progressive intelligence. He must not pander to traditional prejudice; he must

not too readily adopt newly-formed theories, but keep steadily forward till he has wrested the ballot-box from the illiterate and their designing leaders, who hesitate not to lead the ship of State toward inevitable annihilation. Let him weave around this century-old Republic of ours a network of intelligence, through the meshes of which can enter no transitory current of skepticism, and bind it to the nation with tendons that no financial panic or communistic uprising can snap. Once bound to a system of general instruction, and we are anchored to the rock of safety.

Taking the well-informed man for our model, we must, in order to make all men well-informed, ascertain what special elements of information exalt most his usefulness. But first, however, if we inquire how he has obtained his knowledge we shall find it has been by the only natural way—the way by which man has developed from his former state of savagery to his present civilized state, by grasping facts singly, and only as a demand was created for additional knowledge. And the only commendable mode of teaching the young is by a method founded on this natural law.

To acquire worldly wisdom there are two avenues open to us—one by our own experience, the second by the experience of others. To acquire by the first method, we must ever be on the alert to cultivate observation, for this is the road by which all knowledge of nature and her laws is conveyed to the understanding. To gain it by the second method, we must simply *learn to read.* But learning to read is something of a task. It is something more than a mere elocutionary practice, an exercise of the vocal organs; it is a study of the world by the means of printed characters. Learning to read includes the acquiring of a taste for reading, for without that taste the learner can make no continued progress. The object, then, of teaching children to read is not what too many seem to think—that they may enunciate clearly and pronounce correctly; but that they may be possessed of the means of pursuing their own studies. Developing a taste is the primary object, and training the vocal organs only secondary. We should not aim so much to make good elocutionists as to make good students. The one grand object in our public schools around which center all other considerations, is to make diligent readers. Every influence should be brought to bear for this purpose. If a child leaves school with a taste for reading, no matter how deficient he may be in the exact sciences, his education is insured. It is not finished. There are no "finished" educations this side of the grave. The true work of the school is not to educate children, but to fit them to educate themselves. And the kind of training that will fit them to accurately compute the advantage they had over a neighbor in a horse-trade, is not so essential as that kind that will lead to the reading of the Federal Constitution and the proceedings of Congress. Don't object that this kind of training makes "bookworms," for bookish people make excellent citizens. America never has nor ever will lack sharp business men; but it does lack reading men. By reading men we do not mean readers of stock reports and commercial columns, but readers of English literature.

To promote a taste for miscellaneous reading some different plan must be adopted from that so generally practiced. It is impossible for any one to tell just what plan will succeed best. Well-selected school libraries will play an important part, but it may be necessary to do something more than appropriate money for their purchase. Judgment must be exercised in their selection. Perhaps no other matter appeals so strongly to the experienced judgment of school authorities. Certainly no other matter is so generally neglected.

We do not need patent-leather binding and encyclopediac treatises on abstract science so much as we need plain but attractive reading matter, suited to the capacities of the readers. But we may need something more, and if so, our course of study should furnish it. It may be necessary to devote a portion of each school day to the silent reading by the pupils of something suitable provided by the library fund. An hour employed thus each day by teacher and pupils might not prove an injury. We would much prefer to recommend such employment than the usual drill on Duodecimals, Equation of Payments, Alligation, and kindred nonsense. Current literature, not above the capacity of the pupil—there is now literature for all capacities—can be introduced into the school-room without violating any of the commandments. The periodical must become the teacher's handmaid. The magazines, children's publications, and the daily papers are all too valuable assistants to be ignored. I have known teachers to refuse to allow a paper or book to be brought into the school, even to be read at intermission. We once, in our school days accidentally carried a copy of Wirt's "Life of Patrick Henry" to school, and after conning our lessons, inadvertently opened it to read. "Nothing but text-books" was the rule: blue-beech was the consequence. We cherish no injured feelings, but cannot refrain from saying, "pshaw!" to all such conduct. Dr. Johnson was of the opinion that desire or taste is the best guide to our intellectual needs, and inasmuch as this is true of our physical wants, (see, Herbert Spencer on "Education") we are inclined to accept the theory as a correct one.

EDITORIAL DEPARTMENT.

On the Course of Studies in Our Public Schools.

In the May JOURNAL an able article by J. L. McClelland called attention to the great number of studies in our common school course. Mr. McClelland took the ground that the tendency of modern educational systems is to attempt to teach too many things; and that in consequence we teach really too few. In this general statement we agree fully with our contributor. It is in *what* shall be taught, that the difference between Mr. McClelland and ourselves consists: in that difference lies the antagonism between the new education—"the culture required by the exigencies of modern life"—and the old system, whose crowning point s the inevitable Latin and Greek University.

We presume that Mr. McClelland and those who agree with him, are no more than ourselves, advocates of confining the instruction in our public schools to the elementary branches. Under existing social conditions, a knowledge of the "three R's" is not sufficient for successful rivalry in the race for wealth or power. If the duty of the State in educating is to prevent crime, then the more liberal the education, the more appropriate it is to the wants of the age, the more efficacious will it prove in meeting the end for which designed.

These preliminary observations bring us to the question—What course of instruction should be adopted for our common schools? Many teachers believe that this question has been answered long ago. They will feel

astonished at what they consider the unnecessary discussion of an established fact.

But it is not so. The subjects taught in our schools fifty years ago will not do for to-day. Educators have recognized this fact; but the recognition has been an act of instinct rather than of reason. Hence our lengthy, incongruous, and illogical course of study—a course made by constant additions of new studies—an attempt to harmonize two utterly discordant and conflicting elements—the old education and the new.

The time has now come when temporizing will no longer avail. Our course of study has become cumbrous, antiquated, impossible. The pruning knife is absolutely necessary. The course must be reconstructed—but how? The conflict approaches which must decide, for some years at least, whether the system of our fathers *is* good enough for us, or if we can make a better one for ourselves. We incline to the latter opinion. We also favor "cutting down" the course of study in the common schools, but not in the way indicated in Mr. McClelland's article in May.

We hold that the advance of science, the increase of commerce and production, improvements in machinery, new and wonderful inventions have made necessary a course of education very different from that of the past generation.

To make intelligent, thinking men and women, we must educate our youth to understand these conditions.

The course of study we would propose for common schools to-day embraces less language and more science—fewer words and more thought.

We favor the "cutting out" of technical grammar, not of physiology; the omission of word analysis, and the retention of physics. We favor the reduction of the quantity of history and geography by at least one-half. Next in importance to reading, writing and an accurate working knowledge of the essential parts of arithmetic, we believe elementary geometry, drawing, physics, chemistry, and physiology should be prominent in every logically constructed modern course of study.

The State Educational Association.

This body will meet in Sacramento, July 1st, 2nd, and 3rd. Arrangements are well under way to make the gathering the most interesting and beneficial of any educational meeting ever held in California. We are informed by Principal McDonald of the Sacramento Grammar School, that ample accommodations have been secured for the various sections of the Institute. The Assembly Chamber will be the main hall for meetings. The principal hotels of Sacramento have reduced their rates for those in attendance. There will probably be an excursion from this city to Sacramento and return, at very reasonable rates. Teachers who desire to join in this excursion will please give timely notice to the editor of the JOURNAL.

Questions for the State Association.

There are many questions of importance to educational progress that will come up for consideration at the meeting of the State Association in July. Among them may be mentioned the suggestion of educational clauses to be embodied in our proposed new State Constitution; the discussion of school law amendments; and the permanent organization of the teachers of this State as a professional body.

A number of County Institutes have already named delegates to the Association; and we believe there will be a general attendance of teachers from all parts of the State. This is highly desirable, as is also some preparation on the part of teachers for taking an active part in the proceedings.

We recently saw some specimens of penmanship in a primary school in this city that quite surprised us, on account of their excellence. They were written by pupils in the seventh and eighth grades. What specially drew our attention to them was the wonderful *uniformity* of the class specimens. In classes of forty children, specimens were almost as much alike as peas in a pod. Then the letters were very well made, and as legible as print. We made special inquiry as to

how the results were obtained in children so young. We were taken to class-rooms and shown how, by seeing the work done. The pupils had been taught the elements of the small letters, (not capitals) and had practised them, making them until they knew them as they know the alphabet. Then the teacher dictates words to them by elements, and all write from the dictation. And as the papers or slates are *lined*, every pupil makes the element of the same size and in the same way, consequently every word written looks almost as if it came from the same mould. They learn this in a very short time with little effort, and by the time they have been in school two years—that is when eight years old—they will write better than one-half the adult people. We do not know how far these results are obtained in other schools, but the plan is worth trial; though many may object to using elements at all.

Will the primary teachers of the State please send to us, for publication, lists of such books as are most suitable for Primary School Libraries. Every good teacher knows of some one or more volumes specially adapted to young children from six to ten years of age. By publishing such, every primary school library in the state may soon be filled with a good number of choice volumes of child literature. We made this suggestion at the late Marysville Institute, the idea being called up from something said by an active primary teacher in that lively Convention. So far we have received no list. Will some one start it.

Some teachers object to a quiet manner in the school-room, because, so they say, it indicates a "lack of enthusiasm." Herein lies a great mistake. There is no necessary connection between enthusiasm and noise; between a quiet determination to have order and a phlegmatic indifference to inattention and mischief.

To have good order, the teacher must keep herself in order. A nervous, fretful, undecided, and noisy manner is infectious; no teacher who fails to guard herself against these faults, can ever get undivided attention or good order.

In the May *Indiana School Journal* is an article on "Written Examinations made Easy," which describes a method apparently new in Eastern educational circles, of ascertaining the proficiency of a class in almost any study. This method (it has been called "oral examination" here, perhaps because it is *not* oral) has been used for more than six years past in the South Cosmopolitan Grammar School of San Francisco, and was fully described in the JOURNAL of August, 1877, by Prof. Herbst, Principal of that school. The Editor of the JOURNAL has introduced the system to the attention of hundreds of California teachers at the Spring Institutes just past, and it is becoming quite popular here.

We are pleased to announce to our readers, that in the July JOURNAL will appear the first of a series of articles by Prof. M. M. Scott, of the Imperial University of Tokio, Japan, and formerly a prominent teacher in California. The subject will be "The first introduction of Western Learning into Japan." His well-known ability and culture give assurance of articles of rare merit and interest.

A printer's mistake in the May number of the JOURNAL omitted to give due credit to *The Primary Teacher* for Mrs. Hopkins' excellent article on "The Class in Arithmetic," which we selected from its pages. The *Primary Teacher* is an excellent educational magazine, and we hope to draw frequently on its columns.

We see from our exchanges that the National Educational Association will hold no meeting this year on account of the Paris Exposition, as so many prominent educational men have gone to that great exhibition.

The full programme of the State Association will be published by us in the July number, which will be issued about June 30th. All changes of address must be reported to us before June 25th.

There are many important announcements in the PUBLISHERS' NOTES on page 8. These notes will always be found interesting and worthy of perusal.

GENERAL NOTES.

Baltimore's School Board disfavors any decrease of the public school teachers' salaries, which now average but $611 a year. They propose cutting down expenses in school furniture and fuel, instead. —*The Independent.*

From Iceland come reports of a great eruption of Mount Hecla. It began on February 27th, and was accompanied by severe shocks of earthquakes. On March 22d the eruption still continued, but with diminished violence.

In a recent lecture on "Fiction, Old and New," given at the Hawthorne Rooms, in Boston, Mr. James T. Fields remarked that numerous novels written in our day were fit only to be avoided. There were, on an average, 500 American novels written every year, each with twenty-five characters on the average, making 12,500, and of all these probably not more than 500 were worthy the acquaintance of readers. That class of novels which tended to make people dissatisfied, weary of life, and fond of display was unwholesome, and should be avoided just as truly as a positively vicious book.—*Harper's Bazar.*

Prof. Reynolds announces the discovery of a new explosive, composed of 75 parts of chloride of potassium and of 25 parts of a body called sulphurea, which is obtained in large quantities as a waste product in gas manufacturing. The compound, the elements of which are not at all dangerous, is easily prepared at any moment by mixing the ingredients. It ignites at a lower temperature than ordinary gunpowder, and has much greater explosive power, leaving a comparatively small residuum. According to Professor Reynolds, it is especially applicable for blasting, for shells, torpedoes, and for similar purposes. —*Harper's Bazar.*

In traveling through India, recently, Professor Monier Williams, of England, was struck with the remarkable skill attained in multiplication by the native children in the village schools. "The multiplicand," he says, "generally ascends to forty and often higher. The whole class of perhaps a hundred children repeat their tables together, as if with one voice, the accumulated force of which rises to a deafening scream. They can all multiply by fractions, particularly by $\frac{5}{4}$, $1\frac{1}{4}$, $1\frac{1}{2}$, and $2\frac{1}{2}$, and they can multiply $2\frac{1}{2}$, $3\frac{1}{2}$, and $4\frac{1}{2}$ by the fraction $\frac{1}{2}$." The pupils use no books, but are taught to read and write on the sand or on palm-leaves.

The University at Munich is taking a leading position in Germany, as the rapid increase in its students shows. They now number two hundred more than two years ago, the total being 1,360. At Halle they have just celebrated the 150th anniversary of the establishment of the agricultural chair with a torch-light procession and banquet, and the laying of a corner-stone for a new geological museum. At Bonn Prof. Von Seebach, the well-known geologist, has been elected to the chair of geology and palæontology. At Leipzig a young lady has, for the first time, received the degree of doctor of jurisprudence. Recent statistics show that 60,000 schools, with 6,000,000 pupils, are established in Germany for a population of about 40,000,000.—*The Independent.*

Mr. James T. Fields delivered a lecture on "Cheerfulness" in this city a few evenings since, in which he proposed that every college should have a Professor of Cheerfulness, at a salary of $10,000 a year. Mr. F. was not surprised that so many students died young, and in giving an example of the way in which some children dread the harshness of their teachers, Mr. Fields stated that he was in a school-room on one

occasion when he heard the principal ask a little girl the following questson : "Who made the world in six days, and rested on the seventh?" "I did, sir, but I—I—I will never do it again. The lecturer said that in his opinion Abraham Lincoln was the most cheerful President we have ever had, and that Washington Irving and Oliver Wendell Homes, as literary men, were disciples of cheerfulness.—*Harper's Bazar.*

The following interesting notes are from the pen of PROF. GEO. W. MINNS :

The proprietors of the *Boston Herald*, in their account of the establishment and growth of that paper, make the following interesting statements :

"It was customary in 1847, and for many years after, for newspapers to take pay 'in kind' from advertising patrons. In the cases of grocers, provision-dealers, tailors, dry goods and clothing dealers, this was, of course, easy to manage, for the proprietors could obtain food and raiment in return for the use of their columns, and could also make arrangements to pay employees in the same manner. But when it came to taking *patent medicines* for advertising, there was a difficulty to be overcome. To swallow the dose would be to invite death, perhaps ; and it was not always easy to sell the stuff ; so a large amount of it was frequently accumulated before it could be disposed of. Sometimes the cash would run short on pay-day, and Adams, the cashier, would say, 'Hold on, boys, till I run out and sell another gross of Sarsaparilla.' And the boys would patiently 'hold on' until he had disposed of a lot of the 'infallible,' at reduced rates, to some neighboring apothecary."

I suppose no publisher in California would take his pay in the "Golden Medical Discovery" or even in the "Elixir of Life" itself, but would insist on the mint drops.

Here is an instance of enterprise and skill in getting news in advance of other papers that is not surpassed in more recent times :

"In this same year, 1847, there was no telegraph between Nova Scotia and Boston. Mr. D. H. Craig conceived the design of anticipating the news of each English steamer by a pigeon express. With this design he procured a number of splendid African carrier pigeons, and kept them at his house in Roxbury until they became thoroughly domesticated. He would then take three of them along with him, and go to Halifax, where he would board the English mail-steamer, procure the latest British papers, and take passage in her for Boston. His work during the trip was to make a summary of the most important European intelligence and write the same upon the "manifold" paper. When this was accomplished, he waited until the steamer came to within from forty to sixty miles of land, when, securing the despatches to the three pigeons, he liberated them, and they flew homewards, generally reaching Boston several hours before the arrival of the steamer. The first one to arrive furnished all that was desired ; but it was thought best to have three, as some of them might get astray or be delayed. The news was immediately sent to Boston, and soon appeared in the shape of a Boston *Herald*, before the approach of the steamer was telegraphed from the lower station in the harbor. So hot waxed the rivalry between New York and Boston papers that upon representations made to the captain of one of the British steamers that the despatches sent by Craig with his pigeons were used by Boston parties to affect the stock market, and operate against the interests of New York, the captain attempted to defeat Craig's enterprise. For this purpose, he caused, as it was supposed, the pigeons that Craig liberated on one occasion to be shot. The weather was hazy, and the first pigeon, when thrown up,

circled around the ship for some time before deciding to start. While thus circling around, a gun was fired, and the bird dropped dead. Another was thrown up and shared the same fate. Craig then went below into his state-room, and took the only remaining pigeon and threw it out of the porthole as far as he could, and had the satisfaction to know that it got away unobserved. It reached its destination in safety, and the news appeared in the streets of Boston before the steamer got to her moorings.

We have received the annual report of the Public Schools of Columbus, Ohio. It is a handsome volume, and shows great care in its compilations. We make the following extracts, because the subjects to which they refer are being discussed in this city with considerable warmth ; they show what is thought of them East :

"The population of Columbus is about 50,000 ; pupils registered, 7,100 ; pupils in daily attendance, 5,400. Twenty per cent. of the pupils entered at the High School left during the school year ; twenty-two per cent. of the grammar pupils left.

"The study of German in Columbus, where the German element is strong, is very popular, and consequently must have the same footing as the English language. Weighty arguments have been made that the German language could not simultaneously in connection with English be mastered with satisfactory results ; but experience and close observation have taught that far from restraining or in any way interfering with other branches of study it would tend to facilitate them. Our Superintendent says : 'American children in English schools advance no more rapidly than those in the German-English, with the additional study of German, with the odds in accurate scholarship and power of application largely in favor of those who take German.' And German-English schools cause no extra expense.

"The cost of books, for each child, in the grammar school is $16.90 for the course of eight years, or $2.10 per year. This does not include the high-school course, and only includes what the Board *requires*. The Latin course in the high school costs $25.10, and the German course, $20.31—each a four-year course.

"Much opposition is made to drawing. The objection is made that too much time is given to it, to the neglect of other studies. Some wish it discontinued ; but the Committee are decidedly in favor of retaining this useful and beautiful study in our course. We believe there is no department of business and no condition in life in which this accomplishment would not be of utility. Pestalozzi says : 'The art of drawing ought to be an universal acquirement, for the simple reason that the faculty for it is universally inherent in the constitution of the human mind.' There are few cities of any importance from Maine to California where there is a good system of instruction in which drawing is not taught. An exhibition of the drawings of our schools was made at the close of the year attended by 3000 people.

"For three years and a half we have had a systematic graded course in music. Special teachers have taught both pupils and teachers. They are trained to sing at sight, to read music readily, to sing music suited to their age and comprehension, accurately, at the first attempt. Agassiz, the great naturalist and 'wonderful teacher,' expressed his estimate of its value as a discipliner of the mind with great force and point when he said to a pupil : 'Your great deficiency as a naturalist is a want of severe precision of thought ; go and take lessons of a good teacher of music.'"

C.

Hope is always better than fear, as courage is better than cowardice.

CORRESPONDENCE, NOTES, AND QUERIES.

A Few Uncommon Questions.

A piece of growing grass will feed 6 horses 8 weeks, or 8 horses 4 weeks.

1. How long will it feed 7 horses?

2. How many horses will it feed 2 weeks?

3. How many horses will it feed all the time, the grain supposed to grow at the same rate each day?

A round pole, 30 feet long, 2 feet diameter at the base and 6 inches in diameter at the top has a line winding round it from the top, which passes round the pole once during each foot of fall, until it reaches the bottom. What is the length of the line?

A hollow iron globe 1 inch thick holds 1 gallon of water. The same quantity of iron cast into the form of a hollow cubical box, whose sides are 1 inch thick, will hold how much water?

What is the greatest number of balls 1 inch in diameter that can lie in a square box 1 foot each way? How many in a hollow globe 1 foot in diameter?

QUESTIONS FOR THE "PRACTICAL PRIMARY DEPARTMENT."

1. Does the Grube method follow any path of nature? Did any person or people ever learn arithmetic by that method?

2. If it takes one year to get the first ten numbers and another year to learn the next ten, etc., how old will the pupil be when he can perform all of the problems given by the State Board of Examination?

3. If a child can learn all of the first four years' work of the school course in the fourth year by an old-fashioned way, what are the great, wonderful, and peculiar advantages of the Grube method? Ans.—To show off before visitors and County Superintendents.

C. M. DRAKE.

EDITOR JOURNAL: Will T. S. Price, in his solution of the algebraic question, "Find by a simple equation a number, the square of which exceeds its square root by 14," please to explain how he finds the second member of the equation, "$4x^2-(\ )+(14+x)=0$." Why is it equal to zero? By so doing he will oblige,

Yours respectfully,

F. A. SPAULDING.

Livermore, May 14th, 1878.

MR. EDITOR: I saw in the *New England Journal of Education*, of May 29th, 1878, this, in answer to queries:

"'I am not to discuss the question whether these are equally beneficial.' *To discuss* depends on the adverb *not*."

Will you please tell me in what sense "*to discuss*" can be said to *depend* on "*not*."

E. H.

Will some Englishman please inform us why his countrymen almost always say "different *to* a thing," instead of different *from*, etc., etc.

MEETING OF THE STATE BOARD OF EDUCATION.

The following rules and regulations for the government of schools were adopted by the State Board of Education, March 28th, 1878:

Resolved, That we recommend Johnson's New Universal Cyclopedia for use in the school libraries of the State, not only on account of its low price, but also on account of its great excellence in the departments of geography, biography, history and sciences, which make it, on the whole, the best work of general reference for our common schools at present obtainable.

GRADE OF SCHOOLS.

To define more strictly the grade of schools, and the rules and regulations thereto, the Board declares that:

First—All schools in which there is no class of three or more pursuing studies in advance of the first division of the third grade, as laid down in the course of studies for the public schools of California, are *Primary* or *Third Grade Schools*.

Second—All schools in which there is a class of three or more pursuing the studies in the course of study for Second Grade, as prescribed in the course of study for the public schools of California, and no class which has completed this course, are *Intermediate* or *Second Grade Schools*.

Third—Schools in which a class of three or more are pursuing the studies of the First Grade, as prescribed in the course of study for the public schools of California, and no class which has completed this course, are *Grammar* or *First Grade Schools*.

ADVANCED GRADES.

The advanced course for Grammar Schools shall be as follows:

Second Division — Higher arithmetic through percentage; book-keeping, single entry; advanced grammar; natural history —botany; Swinton's Word Analysis; vocal music, and drawing.

First Division — Elementary algebra, through quadratics; higher arithmetic, completed; composition, including invention and the treatment of subjects in essays; spelling and word analysis; constitution of the United States and California.

The studies in the advanced grade must not be taught during school hours in any school employing but one teacher, in which there are also classes in the Primary Grades.

While the course of studies prescribed by the State Board of Educatiou should be strictly adhered to with pupils attending from year to year, yet a wise discretion should be exercised by Superintendents and teachers in deciding how closely it should be followed with pupils who are only in school a few months, or who, from age or other circumstances, are soon to leave the public schools.

Studies pursued by pupils out of the regular course, (in the "discretion of Superintendents and teachers") *i. e.*, the studies of the lower grades not having been completed, *do not affect the grade of the schools.*

CITY AND COUNTY BOARDS OF EXAMINATION.

Resolved, That members of County and City Boards of Examination be required to transmit the following oath to the State Board of Examination to accompany each set of papers forwarded:

"We, the undersigned members of the County (or city) Board of Examination of —— County, (or city) do hereby solemnly swear that to the best of our knowledge and belief the examination upon which the above credits are allowed has been conducted strictly in accordance with the regulations of the State Board of Education and the State Board of Examination, and that we are fully satisfied that none of the candidates have had access to the questions used so as to give them an unfair advantage in the examination."

Sworn and subscribed to before me, ——, County Superintendent of ——County, this —— day of —— 187—.

Resolved further, That the County Superintendent must swear and subscribe to the above before a Notary Public, or other legally qualified person.

In any case where this sworn statement cannot be presented the County Boards must note definitely, upon a separate sheet, the reasons why they cannot make such certificate if they transmit the papers to the State Board of Examinatlon.

Resolved, That County Boards of Examination should refuse to examine all candidates not residents of the county in which they apply for examination, excepting such as may have taken schools in said county; and County Superintendents and County Boards should refuse to recognize any certificates obtained in violence of this regulation.

Resolved, That the County Boards of Examination be instructed, at the close of each examination, to take the affidavit of all applicants for teachers' certificates to the declaration now required of them, the oath to be administered by the County Superintendents.

E. S. CARR,
Secretary Board of Education.

A large number of Life Diplomas, nearly seventy, we believe, were granted at this meeting of the Board. We have, however, failed to receive the names of those to whom they were granted.—[EDITOR JOURNAL.

STATE OF NEVADA.

The first session of the State Teachers' Institute of Nevada was held in Carson City, April 22d, 23rd, 24th, 25th, and 26th. State Supt. S. P. Kelly presided; and the session is pronounced to have been exceedingly instructive and valuable in the educational history of Nevada. The programme of exercises was compendious, well-arranged and exceedingly well carried out. A stranger reading the report of the proceedings in the Carson *Morning Appeal* would come to the conclusion (and we know it to be a just and accurate one) that Nevada is fortunate in having some of the ablest teachers in the Union.

The following officers were elected: Vice Presidents, Mr. Baker of Storey, Mr. Moody of Ormsby, Mr. Casebeer of Lyon, Mr. Clarke of Washoe, Mr. Pike of Churchill, Dr. H. Smith of

Douglass, A. E. Kay of Eureka; Recording Secretary, Miss Gates; Corresponding Secretary, D. A. Ewing.

An address of welcome was delivered by E. A. Moody of Ormsby, which was responded to by E. J. Passmore of Virginia; an able essay was delivered by Miss Habeight which was most favorably received. The lecture of the Hon. S. P. Kelly which followed, occupied thirty minutes in its delivery, and was a most carefully prepared document. The points touched on were Institutes, Primary Education, Trustees, the Co-operation of Teachers and Parents, etc., etc. The lecture was well received, and is an exceedingly able document.

An able essay was read by Miss Everett, of Gold Hill.

The Institute called in a body at the Carson City Kindergarten, taught by Misses Babcock and Martin. They witnessed a full day's work in the Kindergarten, and were both astonished and delighted at the results produced by training under the Fröbel system.

Prof. H. H. Howe, of Virginia City, delivered an exceedingly interesting and able address on "Arithmetic." An experimental class was used to illustrate his methods. The lecture gave rise to an extended discussion, participated in by Messrs. Bray, Foote, Pike, Mrs. Mygatt, and Misses Batterman, Dunlap, and Salkeld.

An exercise on "Grammar," with a class from the Carson City schools, by Miss Jessup, of Virginia City, was interesting and instructive, as was likewise a geography exercise by Mrs. Swift.

W. H. A. Pike delivered an able address on "Centralization"; Miss Michelson, of Virginia, read an excellent essay.

F. M. Campbell, City Superintendent of Oakland, California, who had consented to deliver an address, was unable to be present at the Institute, and so telegraphed the abstract of his address from Oakland. This brief and pointed address fairly bristled with suggestive ideas. It was on "Co-operation of Parents and Teachers."

Mr. Van Wagenen read an admirable and concise paper on "Trustees and Teachers in their relations to Schools." Mr. Ewing read a well-written essay on "Grading," and Mr. Bray a carefully prepared address on "Discipline," and Mr. Davis, of Gold Hill, an able paper on "School Legislation," in which suggestions were made for the amendment in many particulars of the Nevada School Law.

The Institute adopted a Constitution and By-Laws, and after making arrangements for permanent organization, and adopting a number of resolutions, adjourned *sine die*.

Among the resolutions adopted was the following, offered by Mr. Moody, of Virginia City, and was unanimously adopted:

Resolved, That this Institute endorse THE PACIFIC SCHOOL AND HOME JOURNAL, and cordially recommend it to the support of the teaching profession of this coast.

SUMMER INSTITUTES.

SACRAMENTO COUNTY.

Without exception, the Institute held April 29th, 30th, and May 1st, at Sacramento, was the most enthusiastic and remunerative meeting of the kind ever held in that city. One hundred and thirty-one teachers were in attendence. Supt. Landes presided. Prof. A. H. McDonald was chosen Vice-President; C. W. Osborn, Secretary; and H. B. Foskett, Jr., Assistant-Secretary.

The following committees were appointed by the Chair:

On Resolutions—Messrs. J. W. Johnson, E. H. Bradner, P. D. Smith, Geo. Smith, and Misses A. C. Weeks and Ida Lynch.

On Introduction—Miss Addie Wells, Mrs. S. H. Jackman, and Professors Ungar and McDonald.

On Questions—J. E. Blanchard, Mrs Clara Walton, Miss M. J. Watson and Miss Jennie Armstrong.

The Institute was opened by prayer by Rev. Mr. Rice, followed by an instrumental solo by Miss Jennie McMenomy, and opening address by Supt. Landes.

Essays were read by Mr. C. V. Osborn on "Cotton Culture"; Prof. K. W. Brier on "Pure Air and Exercise"; E. H. Bradner on the "Credit System"; and C. C. Clements on "Penmanship." Mrs. Jeanne C. Carr addressed the Institute on "Social Economy"; Prof. Norton of the State Normal School spoke on "Boys," and the "European Situation"; Prof. McDonald on the "Metric System"; P. D. Smith on "Practical Methods of Teaching"; Miss Solter, a Danish lady, lectured on "Thorwalden and his Art," and "Denmark and the Danes"; and Mr. Lyser, of the JOURNAL, spoke on "Reading," and "Methods of Examination."

The lectures of Miss Solter were exceedingly enjoyable, as were those of Prof. Norton and McDonald.

The following resolution, introduced by Mr. Lyser, was unanimously adopted:

WHEREAS, A Constitutional Convention will soon meet to draft a new Constitution for the State of California, in which an educational clause will be embodied; therefore be it

Resolved, That this Institute recommend to the favorable consideration of the Citizens of Sacramento County, as a proper person to represent educational interests, the name of County Superintendent, E. L. LANDES.

The following persons were appointed to make the necessary preliminaries for the State Educational Association which is to meet in Sacramento in July: Messrs. Brier and McDonald, Miss Jennie Armstrong, Mr. Howard and the County and City Superintendents.

The resolutions introduced by the Committee, and passed by the Institute were the following:

That conducting Institutes by depending on prepared lectures by parties who had given the subjects careful thought, is preferable to the old plan of chance discussions without preparation; indorsing the efforts of Superintendent Landes in endeavoring to dispense with unnecessary textbooks, and holding that the failure to repeal the "Tuttle Act" of 1876 was a triumph of corruption and an injury to the best interests of our public schools; believing that the general adoption of the metric system would be an advantage to the community, and that Professor McDonald, being a member of the American Metric Bureau, be requested to ask the Bureau to establish a depository on this coast; *indorsing* THE PACIFIC SCHOOL AND HOME JOURNAL; holding that the branch of natural history referring more particularly to insect destruction of plants, fruits, and growing grains, should be more practically and generally taught in our public schools; endeavoring to impress upon the minds of the pupils the value of economy; recommending that, in annual examinations for promotion in the city public schools, the monthly markings count one-half of the usual standard; returning thanks to Mrs. Carr. Miss Solter, Profs. Norton, Adams, Brier, McDonald, and Lyser, to the Music Committee and the City Board of Education. Thanks were returned to County Superintendent Landes.

Forty-two new names were added to the subscription list of the JOURNAL, making, with the already large number, almost the entire corps of teachers in this county.

YUBA COUNTY.

Supt. Steel has awakened so active an interest in educational progress, that the scholars and teachers of this county are assuming a position second to none on the coast. The Institute held on the 22d, 23rd, 24th, and 25th of April, at Marysville, was very successful, as a means of culture in methods of teaching.

Supt. Steel presided; W. S. Babcock, of Marysville, was elected Vice-President; B. Gurney, Secretary, and Miss Sadie Subers, Assistant-Secretary.

Deputy State Superintendent Jeanne C. Carr and H. P. Carlton, assistant editor of the JOURNAL, were present, and delivered lectures.

Mr. H. C. Babcock, of the Boys' Grammar School, presented very clearly his formulas on the greatest common divisor, least common multiple, multiplication and division of fractions, and percentage, illustrating by giving examples pertaining to each of those branches of arithmetic.

Mr. E. R. Hill, of the High School, gave an outline of an excellent method of teaching language.

Mr. Gurney explained his method of teaching spelling.

Mr. W. S. Babcock presented a method of teaching fractions, taking for illustration a line dividing and sub-dividing, and writing the numbers standing for each division and sub-division. The subject was continued by S. G. Isaman, who gave as his method of proceeding in fractions, an apple for illustration; dividing and sub-dividing as in the previous method. This was followed by a general discussion on the subject of arithmetic, which was participated in by a number of teachers.

Mr. Hill gave a plan for teaching advanced classes in grammar, making a chart of nouns, their properties, persons, number, gender, etc., and giving the various divisions belonging to each.

Mr. D. A. Macphee outlined the manner of teaching algebra to beginners. The first step is to try and divest it of all the appearance of mystery.

Mr. H. C. Babcock likewise spoke on the subject of algebra.

Mr. Johnson read an original essay on the Metric System, and explained the meaning and uses of the different measures connected with this system.

Supt. Steel delivered a highly interesting and instructive address on "Reading."

Mr. Carlton, Mr. Hill, and Mr. Boardman spoke on "Primary Arithmetic"; Mr. Hill on

"Grammar," and Mr. Carlton then gave a talk on "Composition," which led to an extended and enthusiastic discussion.

Supt. Graves, of Sutter County, and a number of teachers from his county were present, and took part in the exercises.

Mr. Carlton gave an evening lecture on "Natural History," which was very warmly commended.

The Institute closed with exercises af a social nature, which were thoroughly enjoyed by all.

Before the adjournment, the following resolution was passed:

Resolved, That this Institute endorse THE PACIFIC SCHOOL AND HOME JOURNAL, and cordially recommend it to the teachers of California.

SANTA CRUZ TEACHERS' ASSOCIATION.

The second meeting of the Santa Cruz Teachers' Association took place on Saturday, April 16th. Report of previous meeting being read and accepted, Mr. Galbraith, Principal of the Bay View School, read a very forcible paper on the need of discipline, conscience, and culture, in those who assume the office of instructor. This statement opened with a graphic picture of the fishing village of Gloucester, Mass., or rather of the boys born there, who spend eight or nine months of each year "extracting the sportive cod from the icy waters of George's Banks," and the other three in attacking the three R's in the "winter school" provided especially for them. These youths, before proceeding to business compare the teacher with the various skippers under whom they have sailed, and if any doubt exists in their judgment concerning his muscular efficiency, they refuse to take up their books until by actual encounter of strength this doubt is settled in favor of the pedagogue. This was the effect, in fact, of too much fish, which was worse than no fish at all, if one might judge by these lads, accustomed as they were to this diet of phosphoric virtue, and for the rest, oaths and marlin spikes.

The nature of "The Difference between a Boy and a Lobster" was the text which afforded discussion of the responsibility resting on the teacher of the necessity for intellectual culture, of which too much could never be acquired, and especially of that high moral training, without which no one had the right to assume the place of instructor. The teacher's habits, convictions, impulses, aspirations, enthusiasms, had a powerful influence over his pupils. Inferior teachers lower the tone of private and public morals. The curse of our nation to-day is the superstition that wealth is of primary importance; culture and character secondary. There is a tendency to a depreciated standard in the effort to serve an intensely practical age. We train scholars into machines for developing material wealth—nothing more. Without true culture in the possessor, wealth is worse than useless. The low tone of popular morality and official integrity shows how deeply this virus of materialism has penetrated the body politic. How much of this is chargeable to the low tone of the school-room? The only safety for society lies in maintaining the superiority of intellectual over material values. Our loud praise of the Fathers of our country is but empty sound, unless we are actuated by the same spirit that possessed them.

Culture does not by any means depend on the amount of academic instruction received, though such instruction may be a most valuable auxiliary towards its attainment. It is the spirit we bring to the study—the sort of value we place on knowledge—that decide its title to "culture." No teacher can be successful in the highest sense who is without this desire to enter new fields of knowledge, or who fails to keep his moral standard pure and high. It is enthusiasm that makes proselytes, and it is scholarly enthusiasm of the teacher that awakens and preserves in the pupil a desire for moral and intellectual excellence.

The pecuniary reward does not decide the worth of the teacher's labors. The best efforts for improving the condition of society are rarely understood and never rewarded from the monetary standard of ordinary business. It matters not how inadequate a conception of the value of true education the trustees of a school may have, or with what niggard hand they dole out what they consider a recompense, it is the duty of the teacher to give his very best service. Many a valuable member of society owes his or her powers and position to the faithful exertions and encouragement of a real educator. Carrying pupils through the prescribed course of study constitutes but a small part of his labors. It is the inspiration he communicates, the love of study he arouses that is the true criterion of success.

Mr. Brady, of Aptos, next explained his method of teaching Decimals and Percentage, and Mr.

E. C. Newell made some clear and valuable statements under the latter head.

Prof. Anderson, who had been deputed to speak on some of the amendments to the School Law proposed by Prof. Carr in his biennial report, offered the following resolution, bearing on Section 1750, concerning graduates of Normal Schools.

Resolved, That in the opinion of this Association all graduates of State Institutions should be required to pass the same examination as other applicants for certificates.

A general discussion of the question ensued, those speaking in the affirmative arguing that, as students of Normal Schools were supposed to have the very best opportunity for acquiring the necessary education, there was nothing unreasonable or unjust in demanding that their knowledge be tested by the standard required of those less favored by opportunity. The exception made in favor of this one particular set of graduates was invidious and uncalled for. Graduates of other schools have had equal examinations, why should they not have equal rights? On what plea is this unjust distinction made? Was it the intention to force applicants for certificates to attend the Normal School, where examination by their own teachers would ensure the necessary approval? The head of the Normal was one of those who made out the State Examination papers. Even if the same were placed before his senior class, the fact that his classes were accustomed to the peculiar shape of his thought made it easier for them to succeed. Fairness required that all should pass the same test.

Those taking the negative urged the superior constitution of the State Institution, which enabled it to be thorough in every department, and laid especial stress on the Training School attached, wherein each student must learn the art of keeping order and conveying to others what they have acquired themselves.

Much spirit was manifested in the discussion, and the best of feelng prevailed. It was understood that there were five Normal School graduates present, but the resolution was carried by only one dissenting vote. The motion was afterward reconsidered for the purpose of amendment touching or including the time and place for examination. It then passed in this shape:

Resolved, That in the opinion of this Association no certificates of qualification should be granted to any person except those who pass the regular examination prescribed by the State Board.

Miss Hill read a very interesting paper on teaching geography to primary classes.

Monteith's Geography then came under consideration, and was very generally condemned as only fitted for lazy teachers, making them still more incompetent.

Much satisfaction was expressed by the members of the Association with the meeting just terminated. Many were heard to declare that they had learned more than at any Institute they ever attended. Others had never felt so much interested in any Institute as in these free meetings, where one is not *obliged* to listen to authorative platitudes.

G. M. KIRBY,
Secretary.

We are compelled to defer until our July number, the account of the proceedings of the Nevada, Monterey, Contra Costa, Placer, Napa, and Merced Institutes, which occurred in May.

We are under obligations for lists of subscribers to Sup't. Landes, of Sacramento; Steel, of Yuba; Brambet, of Fresno; and Moore, of Siskiyou. The administration of Sup't. Morse gives great satisfaction in his county, both to teachers and school patrons. He is so efficient that we know that this, his first term, will not be his last.

Educational Intelligence
FROM
STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

The graduating class of '78 of the Boys' High School numbered thirty-two; of the Girl's High School, one hundred and fifty-one.

The training class for the inexperienced teachers is proving a very decided success. Not young teachers only, who are required by the rules of the Board to attend, but many earnest teachers of experience are voluntarily and regularly present. During the present month, addresses have been delivered by Director John W. Taylor, Superintendent Mann, Deputy-Superintendent Stone, Hon. John Swett, Joseph O'Connor, Mrs. Aurelia Griffith, and Albert Lyser.

Director Taylor's address in opening the course of lectures was an able and eloquent appeal for earnest and devoted work in the teaching profession. Mr. O'Connor's address appears in this number of the JOURNAL; Mrs. Griffith's will appear in the July issue.

Fitzgerald's Home Newspaper and Educational Journal has suspended publication.

The Board of Education has adopted a "New Course of Study" for the city schools. Many important changes are made by this course in the amount and character of instruction to be given in the Department. We shall comment on these changes at an early day.

The month of May has been a very busy one for teachers and school officers, as every one has been thoroughly occupied with the annual examinations.

For promoting in the San Francisco schools, the yearly standing of the pupils is taken for one-half the average, written examinations being required for the other half.

The Board of Education has decided to establish a sub-junior class in the Boys' High School, for the benefit of boys who desire, by taking a classcial course, to graduate to the State University. Graduates of second grade classes of the grammar schools will be eligible for this class.

Miss Kate Kennedy, Principal of the North Cosmopoliton Grammar School, and for more than twenty years a teacher in this city, has obtained a year's leave of absence, which she will spend in Europe.

There is a surplus of nearly $80,000 in the the school fund of this city for the current year. The Board is very wisely expending this money in purchasing school lots and erecting new buildings.

President Heister of the Board has been seriously ill with pneumonia during the past month. He is now convalescent.

During the past month the Board "has had the backbone," not only to dismiss an incompetent teacher from the Department, but to withstand the strongest political and social influence, and keep him out. As Director Phillips said at a recent meeting, "It has been impossible under past administrations to get rid of even the most incompetent teacher."

It is anticipated that there will be about twenty vacancies in the Department at the beginning of the next school year. There are nearly three hundred applicants for positions.

Among the books adopted for use during the coming year are Swinton's "Language Lessons," and Swinton's "Composition and Grammar."

Prof. Rattan, of the Girl's High School, will spend the June vacation in botanizing "way up north," among the Del Norte hills; D. C. Stone "goes out camping," as usual, in Marin County; John Swett goes to Mt. Shasta; Prof. Knowlton goes to Siskiyou, on Institute business as well as for general recreation.

Nearly one thousand first grade pupils presented themselves at the High Schools for the admission examination on May 24, 27, 28, and 29th. The results of the examination are not yet known, but a large percentage of failures is anticipated, owing to the more than usually difficult character of the questions.

ALAMEDA COUNTY.

Supt. Gilson is exercising a very efficient supervision over the schools of this county. He is, at present, giving considerable attention to the subject of composition and penmanship, and has issued a circular to the teachers of the county, giving minute directions for the preparation of specimens, and for drill in the work. The specimens are sent to the Superintendent's office, and are kept for exhibition, and for comparison with subsequent specimens.

CONTRA COSTA COUNTY.

The Walnut Creek school, taught by Mr. J. E. Pearson and wife, is doing excellent work. Under Mr. Pearson's management and able instruction, the school has increased greatly in numbers, and a spirit of emulation and industry pervades each and every class.

YUBA COUNTY.

The recently elected School Commissioners are raising considerable excitement here. The community is writhing in agonies of anticipation. Indeed, one would think, by listening to the street talk, that the people had already ordered mourning suits for the departed greatness of our city. The only overt act yet committed by said commissioners, is the passage of a resolution to take account of stock, and to introduce a business-like method of purchasing and distributing supplies; and the introduction of a resolution to mix the sexes throughout the schools, so as to give each teacher but one-half the number of classes to hear that he now has.

The Commissioners are actually *visiting* the schools, and inquiring into all the essential elements of their machinery—an atrocity almost unheard of here before. There are also vague rumors of sweeping reductions in salaries.

CORRESPONDENT.

Marysville, May 9th, 1878.

At a meeting of the teachers in Marysville, recently, the question for discussion was:

Resolved, That the co-education of the sexes is detrimental to the best interests of the public schools of Marysville.

The affirmative seemed to have decidedly the best of the argument. What is the matter?

In Yuba City the teachers are going to prepare a literary and musical entertainment, the proceeds to go towards repairing and painting their school building. We think this is putting some body else's duty upon teachers.

LOS ANGELES COUNTY.

The public school at Orangethorpe closed for the summer vacation on 17th May. The closing exercises, consisting of recitations, declamations, music, remarks, and giving of certificates of scholarship to the worthy, were highly interesting. Mr. S. Bush is the Principal.

They have a successful "Literary" in Orangethorpe.

An election will be held in Centralia school district in June, to vote on the question of raising a tax of $800 to maintain a free school.

The Anaheim public schools close on the last day of May and re-open in August.

Orange needs a new school-house as well as a *ditch*.

They have had a transit of *Venus* in Orange. Queer!

A trustee in one of the school districts in this county insists that his boy has a right to carry a shot gun to school to defend himself from bulldosing by other boys.

SANTA BARBARA COUNTY.

A ball is to be given to the school children of Santa Barbara, under the direction of the school trustees and teachers, and no adults on the floor.

They will soon have a new school-house in Colton.

The prosecuting attorney is collecting delinquent school taxes here. Good!

KERN COUNTY.

They have a new school building at Bakersfield.

Two new school districts have been formed in this county.

MENDOCINO COUNTY.

The following circular from Supt. Ruddock fully explains itself. We have but one comment to make thereon, and that is, that every section is full of suggestions for the improvement of our Teachers' Institutes.—[ED. JOURNAL.

"The Mendocino County Teachers' Institute for the school year ending June 30th, 1878, will be held in the Court Room at Ukiah, commencing Tuesday, June 11th, at 10 A. M., and continuing four days.

"A record of attendance, tardiness, absence, etc., will be kept throughout the entire Institute in the same manner as such record is kept in our public schools, which will show whether or not teachers are models in those laws for the infringement of which they hold their scholars to a strict accountability.

"It is to be hoped that no teacher will seek to shirk or to be excused from any duty that may be assigned him or her, but that all will respond to the best of their ability, promptly and cheerfully.

"It should be our aim, as teachers, to conduct the Institute, as nearly as possble, as a Normal School, and teachers will be called upon to give practical illustration of school-room work; consequently, teachers are expected to come fully prepared to give to the Institute the benefit of all the experience they have had upon those subjects they are required to teach.

"In order to make the Institute as exhaustive as possible on public school work, the "Course of Studies," as found on page 78 of the "School Law," to page 83, inclusive, will constitute the bulk of the programme.

"The members of the County Board of Examination will be appointed a committee to supervise the general exercises of the Institute.

"Evening sessions will be devoted to lectures.

"It is expected that each and every teacher of the County will be an active member of the Institute, and not a dumb listener.

"The law providing for Teachers' Institutes declares (Sec. 1560 Pol. Code) that "every teacher employed in a public school in the county must attend such institute and participate in its proceedings." Every teacher contracts to perform this duty in the act of his or her engagement, and those who violate a plainly expressed provision of the law, enacted for their benefit, without a valid excuse, are guilty of "unprofes-

sional conduct," (See Sec. 1752 Pol. Code) and Boards of Examination granting the same may revoke their certificates.

"Nothing will be considered a "valid excuse" unless it be of such nature as to excuse a juror for non-attendance at Court.

"Competent lecturers and Institute instructors will be in attendance.

"All friends of education are cordially invited to be present. Very respectfully,

"J. C. RUDDOCK,

"Superintendent of Schools."

Ukiah, April 22, 1878.

NEVADA COUNTY.

The Selby Flat school opened in May—Miss Louisa Cannon teacher. We have had suspicions of big guns up there before.

The concert given by the public schools of Nevada for school purposes was a success.

The plan to levy a special tax of $6000 to build a new school-house in Nevada City was defeated. Yeas, 156; nays, 208.

NAPA COUNTY.

Miss Jewett has resigned her position in the public school at St. Helena, and goes East. Miss Mary Ball succeeds her.

Miss Emma James, who has been teaching in Colusa County, has returned to Napa.

SISKIYOU COUNTY.

G. W. Oman, lately teaching at Little Shasta, is now at Reading teaching private school.

Superintendent Morse has closed his school at Willow Creek.

The Washington Literary Society of the public school at Yreka, in charge of Mr. Putnam, has been giving entertainments for the purpose of procuring an organ for the school. A very good object.

They are making efforts for a new school-building at Sawyer Bar, to cost $1300.

A County Institute is to be held in Yreka, June 4th, 5to, 6th, and 7th.

Misses Peck and Wheaton, of the Yreka public school, will open a private school soon.

Several school districts in Siskyou have been relieved by legislative enactment.

SONOMA COUNTY.

Under the administration of Prof. S. H. Thomson, LL.D., assisted by Hebor Thomson, A. B., Miss Henrietta Thomson, M.S., and Miss May Thomson, the Alexander Academy has entered upon a career of almost unexpected prosperity. Since Dr. Thomson assumed control of the Academy a few months since, the interest of patrons and students has constantly increased, the number of students has trebled, and the prospect is most encouraging that additional facilities will soon be needed to meet the demands made upon the institution.

A reunion of the Alumni and former instructors of the Academy took place, May 20th, in the Academy building. In the evening, the literary and closing exercises of the Academy took place.

O. T. Weeks, of Laural Grove school, is working his school up to a high standard. He does not report any pupil on the roll of scholarship who does not reach 80 per cent.

SANTA CRUZ COUNTY.

Prof. Anderson, of the High School, proposes to hold their quarterly exercises in the Opera House this year, for the first time.

PLACER COUNTY.

Rock Creek school, under the charge of M. E. McCann, seems to be in a flourishing condition. Their May day picnic was a happy success.

TUOLUMNE COUNTY.

The people of Gilkey District held a picnic and barbecue in their school grounds lately. The literary exercises were conducted by the teacher, Miss Minnie Cohen, late of San Francisco, and were highly creditable. The crowning of a May Queen, and an old-fashioned barbecue followed, and a dance in the evening closed a very enjoyable day.

SAN MATEO COUNTY

The first Summer school in California will be organized at Laurel Hall early in June. Prof. Norton, of the Normal School, is expected to deliver a course of lectures.

Annual Examination of the Public Schools.

[San Francisco, May, 1878.]

Third Grade.

GRAMMAR.

(10 *Questions*, 5 *credits each.*)

1. Distribute properly into columns all the words in this stanza:

"I hear thee speak of the better land;
Thou call'st its children a happy band;

Mother! O, where is that radiant shore?
Shall we not seek it and weep no more?
Is it where the flower of the orange blows,
And the fire-flies dance through the myrtle boughs?"
"Not there, not there, my child!"

2. (*a*) Give three uses of capital letters. (3 credits.)

(*b*) Write adjectives formed from the following proper nouns: Norway, Paris, Scotland, Germany. (2 credits.)

3. Write:
   1. A sentence containing a predicate noun.
   2. One containing a limiting adjective.
   3. One containing the superlative of *bad*.
   4. One introducing the word *woman* in the possessive plural.
   5. One containing the possessive plural of *dwarf*.

4. Write the plurals of ox, valley, chimney, potato, tooth, wharf, life, deer, sheep, thief.

5. (*a*) Name four kinds of sentences. (2 credits.)

(*b*) What is a Sentence? (½ credit.)

(*c*) Define a verb, an adverb, a conjunction, a proper noun, a predicate. (2½ credits.)

6. Write one or more sentences, stating your birthplace and your present residence, giving city, street, and number; your school and grade, the studies you pursue, and tell which of them you like best.

7. Give the present and past tenses of ten verbs which form the past irregularly.

8. Form adjectives from the following nouns: Hope, health, noise, fancy, excess.

9. Form adjectives from the following verbs: Teach, eat, love, reason, drink.

10. Correct—
   1. They ain't none there.
   2. Him and me have went there often.
   3. That book what I give you yesterday.
   4. We think different.
   5. Them apples is ourn.

Second Grade.

GRAMMAR.

(10 *Questions*, 5 *credits each.*)

1. (*a*) Define sentence, subject, predicate, phrase, an adverb.

(*b*) Rule your paper suitably, and write in the proper column each word in this stanza:

"Still the farmer sat in his easy chair,
While, close to his heaving breast,
The moistened *brow* and the cheek so fair
Of his sweet grand-child *were pressed*;
His head *bent* down, on her soft hair *lay*;
Fast asleep were they both on that summer day."

2. (*a*) Parse briefly the five italicized words in the above. (2½ credits.)

(*b*) What is a transitive verb? (1 credit.)

(*c*) Write a sentence containing three transitive verbs. (1½ credits.)

3. (*a*) How do most nouns form their plurals? (1 credit.)

(*b*) Give the plurals of wharf, life, grief, arch, monarch, calf, roof, chimney. (2 credits.)

(*c*) Write the possessive plural of child, monarch, life, calf, arch, bridge, brother, citizen. (2 credits.)

4. In what five ways can a noun be used in a sentence? Illustrate.

5. Write five sentences exemplifying the different uses of pronouns.

6. (*a*) Write two sentences containing predicate adjectives. (2 credits.)

(*b*) Write a sentence containing the superlative degree of *far*. (1 credit.)

(*c*) What is a predicate adjective? (2 credits.)

7. Write sentences containing the past tense of lie, (to recline) lay, flee, rise, come, eat, cut, set, its, go.

8. Write five sentences containing the present perfect tense, indicative mood, of go, write, rise, fly, see.

9. (*a*) What is an adverbial phrase? Illustrate. (1 credit.)

(*b*) What is an adjective phrase? Illustrate. (1 credit.)

(*c*) Construct a sentence containing a feminine proper noun modified by an adjective and an adjective phrase, a verb in the future tense modified by an adverb and an adverbial phrase, and a noun in the objective case. (3 credits.)

10. Give examples of two common errors in the use of—
   1. pronouns,
   2. the past tense of verbs,
   3. the present perfect tense of verbs,
   4. adjectives.
   5. Correct "Every man told their own tale," and give reason for the correction.

First Grade.

COMPOSITION.

(25 *credits.*)

Note to examiners—Penmanship, 15 credits, must be marked on this paper:

(*a*) Write an essay of not less than twenty lines on the following subject: "My Progress at School during the Past Year."

Give the names of the studies you have pursued, tell which you like best, and state what you have learned to do in drawing. Give also some interesting facts that you have learned in history, physics, and physiology. (15 credits.)

(*b*) Write a business letter of not less than five lines, properly addressed, dated, and signed. (8 credits.)

(*c*) Transpose the following into good prose:

"How wonderful is Death,
Death and his brother sleep!
One, pale as yonder waning moon,
With lips of lurid blue;
The other, rosy as the morn
When throned on ocean's wave,
It blushes o'er the world;
Yet both so passing wonderful!"

(5 credits.)

First Grade.

HISTORY OF THE UNITED STATES.

(10 *Questions*, 4 *credits each.*)

1. For what is each of the following dates noted?

1812, 1541, 1497, 1773, 1620, 1803, 1755, 1607.

2. (*a*) Name four prominent Indian chiefs; state where each of them lived, and whether he was friendly or hostile to the white settlers. (2 credits.)

(*b*) State what three European nations settled the coast of North America, and tell what part of the coast was colonized by each. (1¼ credits.)

(*c*) Which of the thirteen colonies was last settled? (¼ credit.)

3. (*a*) Which State was divided during the Civil War? (1 credit.)

(*b*) Which two of the present New England States were not among the thirteen colonies? (1 credit.)

(*c*) Which State was acquired by annexation? (1 credit.)

(*d*) Which was the first State admitted into the Union? (1 credit.)

4. (*a*) Name four prominent American generals of the Revolutionary War. (2 credits.)

(*b*) Name four noted English commanders of the same war. (2 credits.)

5. (*a*) Give a brief account of one battle of the last war with England. (2 credits.)

(*b*) Name four States formed from the Louisiana purchase. (2 credits.)

6. Name four great battles of the Rebellion, with the date and the result of each, giving the names of the Union and Confederate commanders.

7. What possessions did the French hold in America at the beginning of the French and Indian war; what causes produced that war, and to what results did it lead?

8. (*a*) Name the inventors of the following:

1. The Cotton Gin.
2. The Electric Telegraph.
3. The Sewing Machine.
4. The Steamboat. (2 credits.)

(*b*) Name two prominent American poets, and two noted writers of history. (2 credits.)

9. (*a*) Who captured Vicksburg in the Civil War, and to what result did this event lead? (2 credits.)

(*b*) Mention some noted event in the lives of Clay, Franklin, Andrew Johnson, and Calhoun. (2 Credits.)

10. (*a*) What did the United States gain by the Treaty of Guadalupe Hidalgo? (2 credits.)

(*b*) Explain what was meant by the Missouri Compromise, and the Emancipation Proclamation, giving the approximate date of each. (2 credits.)

First Grade.

GRAMMAR.

(12 *Questions*, 5 *credits each.*)

1. Give five uses of the *noun*, with a brief sentence illustrating each.

2. State five different ways of forming the plural of nouns. Illustrate.

3. Write a complex sentence containing an adverbial clause, the verb *to be* in the pluperfect potential, and a predicate nominative modified by an adjective phrase.

4. The teacher said *that that* word *that* I parsed as an *adjective* was, in fact, an *adverb*. Parse the italicised words.

5. (*a*) "And where is *he*, that *tower* of strength?"

(*b*) "*Read* on her urn, 'A broken *heart!*'"

(*c*) "It is a *consideration* of *much* weight."

(*d*) "*Tremble*, then, thou silent *tomb!*"

(*e*) "*Heat* me those *irons* hot!"

Parse the italicised words.

6. Give five rules for the use of capital letters.

7. Give the possessive plural of the following: Man, woman, judge, I, he, scholar, child, thief, hero, who.

8. Define a verb, a sentence, a noun in apposition, a complex sentence, a phrase.

9. Correct the errors in the following sentences. Give reasons for correction:

1. Neither of us four are absent.
2. We have, in this State, only a wet and dry season.
3. I hope I will succeed.
4. Were Clay or Calhoun ever Presidents of the United States?
5. Really, between you and I, I think quite different.

10. Write—

1. A sentence containing *but* as a preposition.
2. A complex sentence containing the future perfect tense, indicative mood, active voice, of *lie* (to recline.)
3. A sentence containing the pluperfect tense, potential mood, passive voice, of *learn*.
4. A sentence containing a proper adjective and a descriptive adjecttve.
5. An interrogative sentence containing the superlative degree of *near*

11. (*a*) When the horses had satisfied their hunger we resumed our journey. Change to a simple sentence. (1½ credits.)

(*b*) As he had now served out his term of imprisonment he was discharged. Change to a simple sentence. (1½ credits.)

(*c*) He had gone. The money was missing. He, only, knew where it was. He was very poor. He was unscrupulous. We both felt positive that he had taken the money. Condense into one complex sentence. (2 credits.)

12. Parse the italicised words in the following:

(*a*) To labor is to *pray*.

(*b*) On *seeing* me he ran away.

(*c*) Let her *return* as soon as possible.

(*d*) *Waving* his sword he dashed into the *raging* fight.

(*e*) On account of his *having committed* that crime he was condemned.

(*f*) War *having been declared*, both sides hurried up their preparations.

(*g*) The *purling* brook ran *singing* by.

(*h*) If I *were* rich I should be happy.

First Grade

ARITHMETIC.

(10 *Questions*, 8 *credits each.*)

Note.—Where the process is correct, and the answer wrong, allow half the credits for the example.

1. (*a*) Define and illustrate ratio, discount, a concrete number, a prime factor. (4 credits.)

(*b*) Why do you commence at the right to multiply, and the left to divide? (4 credits.)

2. (*a*) How many square yards in a square rod? (1 credit.) How many linear feet in one mile in length? (1 credit.)

(*b*) How many acres in a circular field whose radius is 84½ rods? (6 credits.)

3. I wish to remit $1,127.75 to Liverpool; at the rate of 47¼ pence to the dollar, what will be the face of a draft for the amount.

4. (*a*) $\dfrac{\frac{1}{3}}{\frac{3}{7}} + \dfrac{4\frac{1}{7}}{12\frac{1}{2}} = ?$

(*b*) Add $\frac{3}{5}$ and $\frac{4}{7}$ and give the analysis.

(*c*) Multiply $\dfrac{3\frac{1}{2}}{5\frac{3}{4}}$ by $\dfrac{6\frac{1}{4}}{2\frac{4}{9}}$.

(*d*) Divide $\frac{3}{5}$ by $\frac{4}{7}$ and give the analysis.

5. A trader buys four lots of goods amounting respectively to $721, $535.50, $114.60, and $1,146.25. On the first lot he gets a discount of one and a half per cent. for cash, on the second 2 per cent., on the third 2¼ per cent., and on the last only one per cent.; how much cash will pay all the bills?

6. (*a*) What will it cost to fence a rectangular field 182½ rods long and 94 rods wide, at $1.14 per rod? (4 credits.)

(*b*) What is the length of the diagonal of the field? (2 credits.)

(*c*) What is the land worth at $11.25 per acre. (2 credits.)

7. On March 19th, 1874, M borrowed of N one thousand five hundred dollars at 9 per cent. per annum, for which he gave his note. He made payments as follows:

Aug. 19, 1875, $150.
Oct. 1, 1876, $462.
Jan. 23, 1877, $350.50.
July 1, 1877, $300.

What amount will remain due on Dec. 20, 1878? (6 credits.) Write out the note and put the endorsement in the proper place. (2 credits.)

8. I sold two lots at $325 each: for one I received 20 per cent. less than cost, and for the the other 20 per cent. more than cost. How much did I gain or lose, and what per cent.?

9. If 2 men can build 12¾ rods of wall 10 feet high in 6½ days, how long will it take 18

men to build $247\frac{2}{13}$ rods 8 feet high? Solve by proportion.

10. (*a*) What will be the expense of excavating a cellar 36 feet long, $18\frac{1}{2}$ feet wide, and 12 feet deep, at 55 cents a cubic yard? (4 credits.

(*b*) How much will it cost to plank the walls at 18 cents, and the floor at 27 cents per square yard? (4 credits.)

BOOK NOTICES.

MABEL VAUGHAN. By the author of the "Lamplighter." New York: Albert Cogswell, Publisher. San Francisco: Billings & Burgin, General Publishing Agents, 634 Market street.

This volume of 500 pages is a story of New York life, or of American worldly, fashionable life any where. It is the history of a girl born into that unfortunate life, but sent away to be educated by a sensible, religious woman, which saved her. The male characters are carried away by speculation; lose all and go West. The shining females, except the heroine, flutter on butterfly wings till the last minute in the world's gay Paterre, and then sink out of sight. In the far West peace at last settles over a little company of the remnants of the *personnae*, gathered as only a story can gather them; and the tale closes after the manner of a girl's own heart. But it is not equal to the "Lamplighter." In our boyhood we remember seeing the author, and we still feel the charm of her first story.

THE JUNE MONTHLIES.

Harper's for June is an exceedingly attractive summer number. The table of contents embraces "Along the South Shore"; "Dutch Faience," especially interesting to lovers of Ceramic art; "The Battle of Monmouth Court House," by Lossing, appropriate to the centenary of that event. The serials, "MacLeod of Dare," and "The Return of the Native," continue very interesting. Bret Harte has a society poem, "Telemachus *versus* Mentor"; "How shall our Boys be fitted for the Scientific School?" is an educational article of great interest to teachers, at this time. In addition, there are a number of very attractive short stories and poems.

Lippincott's Magazine offers a very excellent table of contents for June. The opening article (well-illustrated) is "Easter on the Riviera." "The Four-in-Hand and Glances at the Literature of Coaching" recalls the modes of travelling of a by-gone day, *apropos* of the recent trip to Philadelphia of the New York Coaching Club, with illustrations. Edward King has a second article on Roumania, full of graphic sketches and interesting details. Marion Couthouy writes appreciatingly of Elizabeth Barett Browning. Dr. H. S. Schell deseribes some new discoveries in "Visual Photography," and Lucy H. Hooper gives an account of "Parisian Maniacs and Madhouses." The stories in this number are numerous and varied. Besides the serial, "For Percival," and the conclusion of Dr. Weir Mitchell's "Hephzibah Guinness," there is an amusing character sketch, "The Professor of Dollingen," by Anna Eichberg, a pathetic story of French life, "Rue St. Jean," and an exciting incident of Railroad Travel "Chased by an Engine." Three of our best poetesses, Louise Chandler Moulton, Celia Thaxter, and Emma Lazarus contribute to this number; and "the "Gossip," besides other good things, gives some hints on art study by Emily Sartain.

The numbers of the *Living Age* for the weeks ending May 4th and 11th have the following very valuable contents: "Russia and India" from the *Nineteenth Century;* "Within the Precints," by Mrs. Oliphant, from advanced sheets; "The Political Adventures of Lord Beaconsfield, *Fortnightly Review;* the conclusion of "Erica," translated for *The Living Age*, from the German of Frau von Ingersleben; "The Gothic Fragments of Ulfilas," *Macmillan;* "A recollection of the Indian Mutiny," by Thomas Farquhar, *Sunday at Home;* "Æs Triplex, *Cornhill;* "The Pleasures of Mediocrity," *Saturday Review;* "A Fearful Swing," *Chamber's Journal;* Mr. Froude's "Life and Times of Thomas Becket," by Edward A. Freeman, Part II, *Contemporary Review;* "Second Sight," translated from the French for *The Living Age;* "Modern Japan," Part II, *Fortnightly;* "Note-Deafness," *Mind;* "Positivism on an Island: the new Paul and Virginia, *Contemporary;* "Can Jews be Patriots?" *Nineteenth Century;* "A Romance of the East Coast, *Fraser*, and the usual select poetry and miscellany. For fifty-two numbers, the subscription price ($8) is low. Littell & Gay, Boston, is the publishers.

Scribner's for June is a magnificently illustrated number. Russel Sturgis has an article on George Cruikshank, which is copiously illustrated with a large number of that great humorist's characteristic sketches. "That Same Old Coon," by Frank R. Stockton; "The Story of Leaken," by Anna Eichberg, are interesting illustrated articles. An especially beautiful article, with unsurpassed illustrations, is Thomas M. Brewer's "Bird Architecture." The serials, "Roxy," and "His Inheritance," are continued. There is the usual number of excellent short stories, and bright poetry. Of the departments, it is necessary to say only that Dr. Holland still wields the editorial pen.

The June number of *St. Nicholas* is a delightful one. "Master Montezema," "One Saturday, "Mrs. Peter Piper's Pickles," and "The Little Red Canal-boat," are charming stories, beautifully illustrated. "Dab Kinzer" is a new serial which opens well"; "Under the Lilacs" is what only Miss Alcott can make a story. "How to Make a Telephone" not only tells our boys and girls how to make one of these wonderful, yet simple little instruments, but gives a clear and concise explanation of the principle on which it works. The poetry (illustrated) and the departments are as attractive as usual, and that is saying enough.

The Atlantic Monthly for June contains the very interesting closing chapters of Mr. W. H. Bishop's romance, "Detmold." The "Imaginary Dialogue on Decorative Art," by John Trowbridge, will certainly at this time attract much attention. In "Days in June" more extracts are given from the journal of H. D. Thoreau. There is an admirable critical article on Doudan, by T. S. Perry; and "New Books on Art" are ably reviewed by an anonymous writer, who discusses Perkins's "Raphael and Michael Angelo," Elliott's "Pottery and Porcelain," Gardner's "Home Interiors," etc. The sixth of Charles Dudley Warner's delightful papers, "The Adirondacks Verified," treats of "Camping Out." Richard Grant White in "England on the Rails," describes English rail-

way traveling and travelers, and Mr. H. F. French in "Count Pulaski's Strange Power," relates some curious incidents which occurred on shipboard during a passage from Portland to Liverpool in 1858. Henry Cabot Lodge contributes an excedingly interesting paper on "Timothy Pickering" and the "Unforeseen Results of the Alabama Disputes" are detailed by Mr. Arthur G. Sedgwick. The poems of the month are "Border Lands," by H. H.; "Decoration Day," by Amelia D. Alden; "Closing Chords," by Rose Hawthorne Lathrop, and a "Spring Song," by Mrs. S. M. B. Piatt. The departments and editorials are very able and interesting.

The June number of *Appletons' Journal* has many eminent contributors, and in consequence, a superior table of contents. Julian Hawthorne contributes "Mrs. Gainsborough's Diamonds"; Susan Fenimore Cooper, "Otsego Leaves"; Christian Reid, "Nathalie's Romance"; "The American at Work," by W. H. Rideing, describes the process of making money" "South Carolina Relics," by P. D. Hay, is another interesting illustrated article. The serials, "Jet—Her Face is her Fortune," and "By Celia's Arbor," continue in unabated interest. There are some good short stories and poems, together with the usual departments.

The first article in *The Popular Science Monthly* for June is by Dr. F. L. Oswald, under the title of "The Age of Gymnastics." Herbert Spencer continues his interesting papers on the "Evolution of Ceremoniai Government," on "Obesiences." Dr. George M. Beard continues his important discussion of "The Scientific Study of Human Testimony." Under the title, "Scientific Courses of Study," Prof. F. W. Clarke contributes an able paper to the practical side of the subject of scientific education. "The Cardiff Giant and other Frauds" are discussed in a very entertaining way by Dr. A. G. Stockwell. "The Order of Nature," by C. S. Peirce, is the fifth in his series of "Illustrations of the Logic of Science." The most important article in the number is that on "Brain-Forcing," by T. Clifford Allbutt, M. D. This paper is worth a year's subscription to the Monthly for every parent or teacher who has responsible charge of the young. Altogether the June number is very strong on the educational side. The illustrated articles are "Water-Waves and Sound-Waves," by Lockyer; "The Gigantic Extinct Armadillos," and "The Pygmy Monkey." There is also a portrait and sketch of the late Professor Hartt.

The May-June number of the *North American Review* contains the following articles: "Is the Republican Party in its Death Struggle?" by Senator T. O. Howe; "The Sovereignty of Ethics," by Ralph Waldo Emerson; "Our Commerce with France," by J. S. Moor; "Discipline in American Colleges," by James McCosh, President of Princeton College; "The Army of the United States," by Gen. James A. Garfield; "Is man a Depraved Creature?" a debate, by Rev. T. W. Chambers, D.D., and Rev. O. B. Frothingham; "The Irrepressible Conflict Undecided," by Senator A. Cameron; "Chinese Immigration," by M. J. Dee; "The Phonograph and its Future," by Thomas A. Edison, the inventor of the instrument. Contemporary Literature. Published at 551 Broadway, N. Y., and for sale by booksellers and newsdealers generally.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR PRIMARY SCHOOL WORK. Edited by Mrs. H. M. SOLOMONS. [Bush St. Primary School, S. F.]

SUGGESTIONS FOR HIGH SCHOOL WORK.

Composition Writing.

Some teachers object to frequent exercises in composition writing because of the vast amount of work necessary to correct the papers. They recognize the importance of requiring their pupils to compose often, but the labor of correcting forty or fifty gnarled compositions a day, short though they may be, is more of a strain than their zeal, enthusiasm, or sense of duty can bear. The result is that one of the most vital branches of education is slighted month after month and year after year, in spite of the terrible smitings the conscience of the teacher receives when

the fortnightly or monthly compositions are passed in. A compromise is sometimes effected by permitting each member of the class to correct his neighbor's work, but every experienced teacher knows this is generally but a poor makeshift. It is unsatisfactory to the teacher, who feels that it is only an expedient to bridge over a difficulty; it is unsatisfactory to the pupils themselves, because they soon become aware that the judgment of their classmates is no better than their own.

To make good writers two things are necessary—*constant exercise in composition* and *intelligent criticism*. Either alone will be of little use, but together they will produce surprising results. We will suggest a plan by means of which the two may be combined in any grade of class from the primary school to advanced classes in high schools. Require from five to ten to go to the blackboard, and all the others to write at their desks on slates or paper as may be convenient. When all are ready, say to the class you wish each member to write you a short composition, and you will give them just five minutes to do it in, and as the most difficult part of the task is to make a beginning, you will do that for them. Then repeat some expression as this: "Just then we saw a boat," and tell all to write it, and see how much they can add to it in the allotted time. The words you have used will present a vivid mental picture to each member of the class, and by the time they have written them they will be ready to go on until the time expires. After this, occupy from fifteen to thirty minutes, as you can afford, in criticising the work on the blackboard. In this way every member of the class will have the benefits to be derived from aiding in the correction of the five or ten exercises under the direct supervision of the teacher, who, in the meantime, will give reasons for changes, and make such remarks as may be necessary. When the blackboard exercises have been corrected it will be well to call upon a few who wrote at their desks, but without stopping to make corrections. Continue in this way until the time expires, when you will call the next exercise.

Suppose exercises similar to this should be given with the same regularity that lessons in geography or arithmetic are, from the primary grade through the high school, and what would be the result?

Would there not be a facility, accuracy, and versatility of expression which would be far more valuable to the pupil than a power to successfully grapple with mathematical puzzles? Skill in literary composition must be cultivated so that the ability to execute will keep pace with the development of the literary taste. Because this is not done, young people become thoroughly discouraged; they find their efforts rude and uncouth, while their taste is quite sensitive and accurate. Will our readers try this exercise, not once or twice, but make it a part of every day's work week after week, making such modifications and improvements as their experience may suggest?

Botany.

II.

PREPARATION FOR THE FIRST LESSON.

Some ten days previous to the first lesson there should be planted some large-sized seed, such as peas, beans, nasturtium, squash, or pumpkin seeds, and some of the smaller sorts too, such as sun-flower, hollyhock, balsam, turnip, etc. These, it will be noticed, are seeds which contain little or nothing besides the embryo. For the second lesson, seeds with conspicuous *albumen* or store of nourishment will be needed. Of this sort may be named the castor-oil bean, morning-glory, four-o'clock, tomato, etc. It is a good plan to secure the attention and co-operation of

the children from the very start, by getting them, or at least the older ones, to plant, each for himself, one kind of seed in a tray, and in sufficient quantity to furnish two or three plants for each member of the class, and still leave a few for further growth and study. As soon as they are fairly up they are ready for use. Other seeds of the same sort should then be softened by soaking them in water over-night, and some should be brought in in their hard, natural state. To illustrate further the first point we take up, a few peach-stones, acorns, or other "hard-shells" will be needful. The list above has been made extensive, so that no one may fail of securing the right sort of objects for study. Do not, however, distract your pupils and weaken the lesson by presenting them all, or even any considerable number of them at once. In general, unless the point in hand necessitates variety and comparison, it were better to concentrate your efforts in the class-room upon a single *good* example of what you would show, and leave your pupils the pleasure and profit of working up the other examples themselves, and of reporting progress before beginning the next lesson.

C. B. Bradley.

Oakland High School.

SUGGESTIONS FOR GRAMMAR SCHOOL WORK.

The Grube System of Teaching Arithmetic.

The whole aim, basis, and principle of the Grube System, as I understand it, is to teach children to do all that can be done with a number before they leave it, embracing all the processes of addition, subtraction, multiplication, and division, dealing with concrete and abstract numbers, especially concrete, and making great use of applications. It is evident, that if a child be thoroughly taught to use and apply the numbers up to ten, the learning of the next ten numbers will not require one-fourth of the work which it has cost him to arrive at that point. My objection to the system is that it takes a very skillful teacher to use it aright, and that in the hands of the ordinary primary teacher it is apt to become mechanical, and will not produce as good results as will former and really less scientific methods. I believe that the right way to begin *fractions* is by a proper application of this system. That is, let the scholar learn all about halves, how to reduce, add, subtract, and, in fact, to do everything that can be done with halves. Then take thirds in the same way, of course combining halves and thirds; then fourths in a similar way. Is it not plain that if a class has spent, say three months, in getting thus far, it would be time well spent, *if the work has been thoroughly done?* If such were the case, the class could easily and readily solve any example in addition, etc., of fraction with no denominator larger than four. If you have any doubts about the value of this method, just step into a third or a second grade class and ask the pupils to tell you the sum or the difference of $\frac{2}{3}$ and $\frac{1}{2}$, or some similar pair of fractions, and see how few of them will answer at once and correctly.

Dudley Stone.

Economy of Force.—A Few Plain Words for Teachers.

Try to obtain the best results with the least expenditure of effort. Remember that in mechanics, the aim of the artizan is to make all his labor *count*. He knows that his muscular power is his capital, and he studies to place it where it will tell to the most advantage. What a wonderful thought that a minimum of force can effect a maximum of work, if the applications are suitable, and if, furthermore, sufficient *time* be given! Thus, a boy's arm

could lift a man-of-war, with a proper arrangement of hydraulic apparatus. No power whatever, is actually gained by the use of machinery; on the contrary, there is always a loss, but, without the machinery the power could not be made to do the work. What a valuable idea is this for the teacher to bear in mind! And how carefully and thoughtfully should he consider how he can apply his mental force, and his physical force too, so as to do the most work. Don't talk too much! You will confuse the mind of your scholar if you do. Rather encourage and teach your scholars to talk, to talk well, to talk clearly and to the purpose. And never take it for granted that, because you tell them something, and they are attentive, and look as if they took it all in, they have really learned it. Never tell them anything without requiring it of them very soon thereafter. When they find out that such is your habit they will learn to give real attention as well as apparent.

Don't be afraid of work, and don't work too hard. From my own observation the first of these directions is not so much needed among teachers as the second. Very few teachers are lazy. The error is on the other side; they are apt to work beyond their strength, gradually sap their forces till they faint and drop by the way. Consider this. A good workman can always do two day's work in one if he chooses, but a wise workman will never do it unless in an unusual emergency. He knows that his forces will last longer and that he can do more in the long run by husbanding his strength.

Take care of your own health and that of your pupils. Remember that every one of them is "somebody's darling," and guard their tender frames as if they were your own. Ventilation and light, are two words which you should make the subject of your constant and careful consideration. Don't allow pupils to be partially asphyxiated by bad air, and don't let their eyes be weakened and rendered near sighted by a bad management of the light. Bear in mind that according to careful investigation near-sightedness is found to increase steadily among school children from the 8th Grade to the High school, and do your best to counteract this tendency. Do try to teach your scholars to observe and think, two lessons which are better than a vast deal of memorized knowledge. Train the memory too, but train it reasonably. Don't burden it with useless rubbish. Teach them to see what is about them, and that you may do this intelligently, make yourselves familiar with the elements of natural science in its various branches. For a single book you cannot find a better than Hooker's "Child's Book of Nature," now, happily, to be used as a text-book in our city schools. But there are interesting and simple manuals on botany, zoology, geology, natural history, etc., which will give you a treasury of facts about the world we live in, which you can profitably use in your school work. Lastly, try to love your work and your scholars. In teaching, more than in anything else outside of the home circle, love is the Archimedean lever which can effect wonders. So may you live happily, and work happily and usefully, and have the proud consciousness of success and reward.

DUDLEY STONE.

SUGGESTIONS FOR PRIMARY SCHOOL WORK.

Reading.

The query has been put in regard to the article on "Reading" in our last issue: "Why print words upon the blackboard when we have them already on the charts?" The reason is this: Children enter school with the eye untrained, or at least not sufficiently trained, to be able to distinguish characters like our letters, in the midst of

such a confused mass as the chart must appear to them. One word on the large blackboard stands clearly out, and the little ones find no trouble in concentrating their attention upon it, which they could not do if among the large number on the chart. When the second word is added, they are already familiar with the first, and so on.

In introducing children to the Reader another point is gained by entirely omitting the lessons composed of two-letter words. Every eighth grade teacher knows what a trial it is to *herself* to get the class through—"Do we go on?" "We do go on." "Is it an ax?" "It is an ax." "Am I in it?" "I am in it." What torture it must be to the poor little strugglers to learn to distinguish between—"on," "an," and "no"; "is," "it"; "ax" and "ox"; "of," "off," and "if."

All this can be saved to teacher and pupils by letting these little words come in naturally in later lessons.

In the high eighth and seventh grades, pupils do not need the blackboard exercise; but the same method of preparing advanced lessons should be adhered to. For instance, on Monday take up the lesson to be read on Tuesday. Let it be short; explain the meaning of all unfamiliar words; let difficult ones be spelled in concert by the class, and give them as a spelling lesson; talk about the story, if it be one; and lead the pupils to make comments upon it. Then read it through, and call upon several pupils to read different paragraphs, correct them, and let them criticise each other. On Tuesday, each pupil may read as much of the lesson as time permits. Some of the children are slow, or have not attended to the previous day's instruction, and will stumble. *Do not help them*—let them study the words out for themselves, giving them plenty of time. Ah! there's the rub. "We cannot spare the time to wait for slow and indolent scholars," says the teacher; "think of all we have to do during the year!" Do you remember the anecdote of the discontented pendulum? There is always plenty of time for taking pains. Nowhere is it so true as in the school-room, that "the more hurry the less speed." Pupils who are prompted will never make good readers; they must be taught to rely on themselves. If obliged to spell out a word, they must regard it with sufficient attention to fix it in the memory, whereas if *told*, they merely glance at and forget it. In strictly following out this plan, however, there will seldom if ever be any laggards in reading.

Suggestions in Teaching Reading.

LOW EIGHTH GRADE.

Pupils may be taught, not only to read, but the proper use of words, capital letters, punctuation marks, etc., in this way:

Print such words as are used in the grade upon separate cards, and distribute them among the pupils. Ask some pupil for a word that he would like to say something about, as for example, *cat*. Let the pupil himself place, as directed, the word thus chosen. Then call for a word that will describe cat, as old. We read, *old cat*. Explain why old will do, and why me, or it, or has will not. We need a word to tell us what cat is meant. *My* is found, and placed before the words, *old cat*. Then we have, *my old cat*.

Some one hold up a word that will tell what the cat does. Various words will be exhibited, but we choose *runs*.

Now we need a punctuation mark to show that the statement is finished. Periods, interrogation points, etc., are presented. The right one is decided upon, and put in its proper place.

The first word for a question is wanted. *Who* is taken. Then a boy proposes to follow it with Ned. Explain that Ned will not do, and ask for a better word.

Also, let a word be chosen, about which some story may be composed. One pupil after another finding a word to assist in its construction; capital letters and punctuation marks being taught in the same manner. After the lesson is thus prepared, the class read it in different ways. J. S.

MR. EDITOR: In the JOURNAL for May your suggestions for teaching reading to a low eighth grade are substantially like Webb's "word method," as far as they go, except that you reject the *printing drill.*

May I present a few additional suggestions, together with an argument in favor of the *printing?*

In order to make the *word method* highly successful, it is necessary to afford more class DRILL than most new teachers would be likely to devise. I have found the following order successful:

First, an animated talk about the thing whose name is to be learned to awaken a clear conception of the meaning of the word and a desire to see its face.

Second, producing the printed word upon the blackboard while the attention is most acute, the class pronouncing it many times as the teacher points to the word.

Third, a *hunting* lesson, in which each pupil points out the word or words learned, among many others, upon the board, upon reading charts and upon the pages of the first reading-book.

Last, printing the word, by the child, upon the black board and upon his slate, with instruction in forming the letters, which are spoken of by their names.

After a few days, the same exercise should be printed and written, side by side, and in a few weeks all *familiar* words will be produced in *script.*

All *new* words encountered during the first term, and *difficult* words afterwards, should be *carefully printed* by the learner.

If I regarded only those things that can be practically followed as *trades* in life necessary to a school *curriculum*, I would say, omit the printing, and, indeed, nine-tenths of all our school work.

But printing is the most powerful means of producing a clear *eye-concept* of the *face* of each word. It produces from the first an intimate acquaintance that will enable the child to call the word at sight without hesitation or drawling.

Printing has the same office as map-drawing, or the drawing of figures in geometry.

Scrip-writing has no such office, and cannot fill the demand.

E. K. HILL,
Marysville.

[The article refered to appeared on page 100 in the May Number.—ED.]

SUGGESTIONS FOR UNGRADED SCHOOLS.

[Extract from a letter from Prof. G. V. Le Vaux.]

My observations of the working of the ungraded schools in this State have not been such as to enlist my sympathies in their favor. In truth, I believe the system to be very defective in comparison with what prevails in many less favored countries. I am one of those who believe in the *thorough grading* of all schools, and in the co-education of the sexes. While I would insist on the thorough grading of all schools, (if I had the power) still I am far from holding that it is possible to grade our small country schools on the same model as large city schools—the grading should be *similar, but not identical.* "The three grades" should apply to all public schools in city or country; but in rural schools, owing to the fact that *one teacher* has generally to teach all the classes, etc., etc., I believe that the number of subdivisions of grades should be less than in cities. The teacher in such places would I think, be able to do more for the school by reducing the number of classes, and teaching the pupils more *en masse a la* Pestalozzi.

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THE TELEPHONE, AND HOW TO MAKE IT.

What is a telephone?

Up go a hundred hands of the brightest and sharpest of the readers of *St. Nicholas*, and a hundred confident voices reply:

"An instrument to convey sounds by means of electricity."

Good. That shows you have some definite idea of it; but, after all, that answer is not the right one. The telephone does not convey sound.

"What does its name mean, then?" do you ask?

Simply, that it is a far-sounder; but that does not necessarily imply that it *carries* sounds afar. Strictly speaking, the telephone only changes sound-waves into waves of electricity and back again. When two telephones are connected by means of a wire, they act in this way,—the first telephone changes the sound-waves it receives into electric impulses which travel along the wire until they reach the second telephone, here they are changed back to sound-waves exactly like those received by the first telephone. Accordingly, the listener in New York seems to hear the very tones of his friend who is speaking at the other end of the line, say, in Boston.

Still you don't see how.

It is not surprising, for in this description several scientific facts and principles are involved; and all boys and girls cannot be expected to know much about the laws of sound and electricity. Perhaps a little explanation may make it clearer.

The most of you probably know that sound is produced by rapid motion. Put your finger on a piano wire that is sounding, and you will feel the motion, or touch your front tooth with a tuning-fork that is singing; in the last case you will feel very distinctly the raps made by the vibrating fork. Now, a sounding body will not only jar another body which touches it, but it will also give its motion to the air that touches it; and when the air-motions or air-waves strike the sensitive drums of our ears, these vibrate, and we *hear* the sound.

You all have heard the windows rattle when it thunders loudly, or when cannons have been fired near by. The sound-waves in the air fairly shake the windows; and sometimes, when the windows are closed, so that the air-waves cannot pass readily, the windows are shattered by the shock. Fainter sounds act less violently, yet similarly. Every time you speak, your voice sets everything around you vibrating in unison, though ever so faintly.

Thus, from your every-day experience you have proof of two important facts,—

first, sound is caused by rapid motion; second, sound-waves give rise to corresponding motion. Both these facts are involved in the speaking telephone, which performs a twofold office,—that of the ear on the one hand, that of our vocal organs on the other.

To serve as an ear, the telephone must be able to take up quickly and nicely the sound-waves of the air. A tightened drum-head will do that; or better, a strip of gold-beater's-skin drawn tightly over a ring or the end of a tube. But these would not help Professor Bell, the inventor of the telephone we shall describe, since he wanted an ear that would translate the waves of sound into waves of electricity, which would travel farther and faster than sound-waves could.

Just when Mr. Bell was thinking how he could make the instrument he wanted, an important discovery in magnetism was made known to him—a discovery that helped him wonderfully. You know that if you hold a piece of iron close to a magnet the magnet will pull it, and the closer the iron comes to the magnet the harder it is pulled. Now, some one experimenting with a magnet having a coil of silk-covered wire around it, found that when a piece of iron was moved in front of the magnet and close to it without touching, the motion would give rise to electric waves in the coil of wire, which waves could be transmitted to considerable distances.

This was just what Mr. Bell wanted. He said to himself, "The sound of my voice will give motion to a thin plate of iron as well as to a sheet of gold-beater's-skin; and if I bring this vibrating plate of iron close to a magnet, the motion will set up in it waves of electricity answering exactly to the sound-waves which move the plate."

So far, good. But something more was wanted. The instrument must not only ranslate sound-waves into electric impulses, but change these back again into sound-waves; it must not only hear, but also *speak!*

You remember our first fact in regard to sound: it is caused by motion. All that is needed to make anything speak is to cause it to move so as to give rise to just such air-waves as the voice makes. Mr. Bell's idea was to make the iron plate of his sound-receiver speak.

He reasoned in this way: From the nature of the magnet it follows that when waves of electricity are passed through the wire coil around the magnet, the strength of the magnet must vary with the force of the electric impulses. Its pull on the plate of iron near it must vary in the same manner. The varying pull on the plate must make it move, and this movement must set the air against the plate in motion in sound-waves corresponding exactly with the motion setting up the electric waves in the first place; in other words, the sound-motion in one telephone must be exactly reproduced as sound-waves in a similar instrument joined to it by wire.

Experiment proved the reasoning correct; and thus the speaking-telephone was invented. But it took a long time to find the simplest and best way to make it. At last, however, Mr. Bell's telephone was perfected in the form illustrated below. Fig. 1 shows the inner structure of the instrument. *B* is the spool carrying the coil of wire; *A*, the magnet; *E*, the diaphragm; *F*, the case; *C*, *C*, the wires leading from the coil, and connecting at the end of the handle with the ground and line wires. Fig. 2 shows how a telephone looks on the outside.

So much for description. You will understand it better, perhaps, if you experiment a little. You can easily make a pair for yourself, rude and imperfect, it is true, but good enough for all the tests you may want to apply.

For each you will want: (1) a straight

magnet; (2) a coil of silk-covered copper wire; (3) a thin plate of soft iron; (4) a box to hold the first three articles. You will also want as much wire as you can afford, to connect the instruments, and two short pieces of wire to connect your telephones with the ground. (Two wires between the instruments would make the ground-wire unnecessary, but this would use up too much wire.) The magnet and the coil you will have to buy from some dealer in electrical apparatus. They need not cost much. A small cigar-box will answer for the case.

In one end of the box cut a round hole, say, three inches across. Against this hole fasten a disk of thin sheet-iron for the "diaphragm." For a mouth-piece use a small can, such as ground spices come in, or even a round paper box.

Now, on the inside of the box, place the magnet, the end carrying the coil almost touching the middle of the diaphragm, and fix it firmly. Then, to the ends of the copper wire of the main coil fasten two wires—one for the line, the other for the "ground wire."

The receiving and sending instruments are precisely alike, each answers for both purposes; but there must be two, since one must always be hearing while the other is speaking.

When you speak into the mouth-piece of one telephone, the sound of your voice causes the "diaphragm" to vibrate in front of the magnet. The vibrations cause the magnet's pull upon the diaphragm to vary in force, which variation is answered by electrical waves in the coil and over the wires connected with it. At the other end of the wire the pull of the magnet of the speaking telephone is varied exactly in proportion to the strength of the electric impulses that come over the wire; the varying pull of the magnet sets the diaphragm in motion, and that sets the air in

Fig. 1.

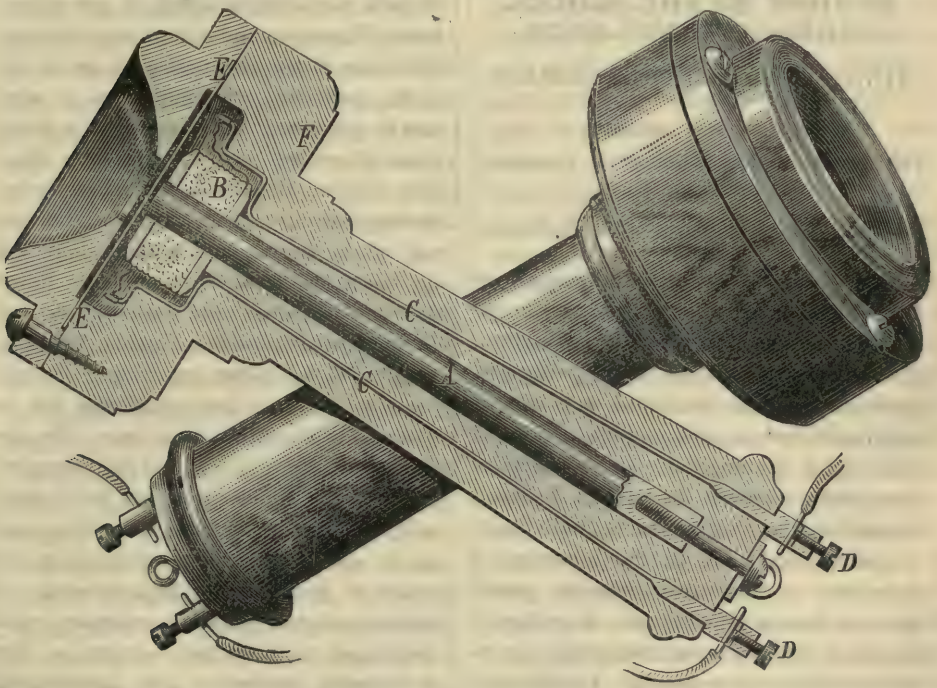


Fig. 2.

motion in waves precisely like those of the distant voice. When these waves strike the listener's ear, he *seems* to hear the speaker's exact tones, and so, substantially, he does hear them. The circumstance that electric waves, and not sound-waves, travel over the wires, does not change the quality of the resulting sound in the least.

I think you now understand Bell's telephone.—*From St. Nicholas.*

THOUGHTS SUGGESTED BY A REVIEW OF THE SCHOOL CODES OF MANY LANDS.

Hints on School Organization.

BY PROF. G. V. LE VAUX.

[Member of the Royal College of Preceptors, England.]

[From an address delivered before the Nevada Teachers' Institute.

Less than ten years ago all the world regarded France as the first nation of Europe —first in arms, arts, and civilization. Every community heard of the perfect organization, model discipline, and almost omnipotent power of her armies: nor was this belief confined to other peoples. Frenchmen heard it, repeated it, believed it, and thus deceived themselves individually and collectively. In the meantime a little and comparatively obscure power grew up beyond the Rhine. It gradually absorbed kindred races, and quietly adopted exterior improvements. It diligently sought out its own defects, and zealously reformed them; it patiently studied the history and political constitution of other lands, that it might be the better able to re-model and improve its own. When challenged by France, it did not boast of its civil freedom nor over-praise its own military organizations. Tremblingly, but hopefully it drew the sword, and the pride of Gaul went down before the superior discipline of its armies—at Gavellotte, Sedan and elsewhere.

As it was with France and her armies so is it with us and our schools. For years we have been telling each other that our schools and school systems are ahead of everything of the kind in the world. We have repeated this so often that at last all believe it, or seem to believe it; and so but little or no effort is being made to improve what has come down to us from our fathers—the educational worthies of Massachusetts and Connecticut.

We are deceiving ourselves. Like the French, we boast too much of our educational Chassepots and school organizations. Believing in our own perfection we do not make sufficient investigation as to what can be improved here, and what is being done elsewhere. Unlike the little kingdom beyond the Rhine, we persist in believing that our systems are ahead of the rest of the world; and that, as there are no defects, we want no remedies. Some day we will awake from our delusion, and be humiliated to find that Canada, Australia, Brazil, and the older countries of Europe have quietly and unostentatiously left us behind in the educational race. In the meantime our legislators and their supporters may fold their arms and be content with what has been done; but it behooves us as teachers to range ourselves in the ranks of progress and improvement—to calmly and conscientiously exchange opinions upon methods and systems, so that by frequent discussion and accumulated experience we may at last find that which is best—best for ourselves, best for the State, and the country generally. Come what may, we will thus have done our duty, and can cheerfully and hopefully abide the result.

With respect to distinctive appellations we would say that, in our opinion, the present classification into first, second and third grades (irrespective of kindergartens) is a simple and convenient arrangement; so also is the more popular division into

(1) Primary, (2) Grammar, and (3) High Schools, although the relative difference of the latter classification is not always clearly understood by the people, owing to the fact that hitherto each grade, or kind of school, has not been over-anxious to confine its labors to its own legitimate sphere or department. The term "Intermediate" is a mis-nomer, and ought to be eliminated from the system. As in other countries the work of the Primary, Grammar, and High Schools (as well as that of the respective classes in each) should be kept separate —clear and distinct. The studies in the primary school should be very different from those in the grammar school, and those in the grammar school should not be identical with those in the high school, and *vice versa*. Nor should the work in either of them usurp or overlap that of the other. The work of the one should commence where that of the other ends. Each should have an allotted, well-known, clearly defined place in the scheme of State Education, and should not be permitted to go outside it nor fall short of it—except by special permission from the County or State Superintendent. After going through the primary school or course, the pupil should be drafted off to the grammar school, or removed into the grammar course, and having passed through the successive stages of the grammar school he should be required to go to the high school, if desirous of pursuing his studies further. The grammar-school teacher would thus be enabled to attend to grammar-school work, instead of being compelled as at present (in country districts) to attend to all classes, and teach all subjects from A, B, C, to algebra and natural philosophy.

The high schools, being supported out of the general education funds, should not be conducted in the interest, nor for the special benefit, of the town in which it may be located, nor should it be under the same board of trustees as the local inferior schools. Pupils from all the townships in each high school district should be eligible, free of charge, or on payment of a moderate fee, provided they pass the necessary entrance examination. Non-resident pupils in attendance, although paying for their own board should be required to live in families approved by the high-school authorities. In England, the pupils board with the masters if there is no boarding house attached to the school. Examinations for entrance as well as those for promotion from class to class, should be held by the County Inspector. In Canada, he receives $5 a day extra while engaged at such work. The high school would thus (as in other countries) become the necessary supplement of the grammar and primary schools—and of mixed grade country schools—besides forming an efficient link between our public school system and our universities. Under such arrangements, the people of California, like their brethren in Europe, Canada, and older states, would not only see the utility of our high schools, but become conscious of their absolute necessity in a free and enlightened community. Hence there would be a general demand for their improvement and extension, instead of a revival of the agitation for their abolition. According to present arrangements the high school condescends, for various reasons, to do common school work, and the common schools attempt to do high school work, and there is apparently no efficient check on such promiscuous and somewhat mischievous tendencies. Hence things get rather mixed, the people very naturally lose sight of the distinctive character and relative or essential importance of the rival candidates for favor; the supplementary nature of the high school is forgotten, and they fancy it could be abolished without loss, for in their opinion it is at best but a select academy for the sons of the rich—an institution of local rather than general advantage.

It has been the custom of late to dispute the public utility of our State Normal School, its graduates being regarded, it is said, as mere "machine teachers," and some of our more intelligent citizens maintain that they ought to be accorded no professional advantages over untrained men or "non-specialists" of other schools of equal educational rank. It would be a matter of amusement to listen to such views were there no danger that the non-professional public might be led to adopt them, and thus become inimical to an institution which is the natural bulwark of the profession—and the most certain guarantee of educational progress in the future. There are lands where no man can teach at all unless he is a normal school graduate, and has served a long period of apprenticeship to the profession under some legally qualified and experienced teacher, and I venture to hope—and I am sure you will cordially join me in that hope—that a time will come when this custom will prevail in every civilized community. Until better arrangements are made, I believe our high schools, under the supervision of the Normal School authorities, might be utilized in training candidates for the office of teacher. All candidates *should be trained* before receiving certificates authorizing them to teach. Yet it is quite plain that one Normal School can never train all the teachers that will be required in the future, and it is undesirable or inexpedient to establish more. The difficulty may be overcome by creating local substitutes, under the control of central authority. As in England, Ireland, and Australia, there ought to be one local training school in each county in affiliation with the State Normal School. Why not give that character to such as deserve the distinction, and thus test the experiment for ourselves? In the Australian colonies, no *ad eundem* certificates are given on the strength of those obtained in other countries; every would-be-teacher, even local State Normal School graduates, have to undergo the prescribed examination before receiving a certificate. No man is allowed to teach unless he has graduated at some recognized Normal School, nor can he enter the Normal School until he has served three years as pupil-teacher in some public school, one of which may be in the county training school. His salary, or "allowance" rather, during his three years' apprenticeship varies from $200 to $350 a year, and he can commence his service at the age of fourteen. He has to pass a prescribed examination every year. The fourth year he is required to go to the Normal School, and while there he is paid $25 a month. After passing through the Normal School course, he is awarded a *second class certificate only*. He is then sent to take charge of a school. After one year's successful practice in this capacity, should he receive in the meantime *two* favorable official reports from the visiting inspector or superintendent, he is promoted by the State Superintendent to the grade of first class. It thus requires at least six years' continuous study and practice to obtain a first grade certificate, namely: three as pupil-teacher, two at the Normal School, and one as an actual teacher. (In this State it does not require six hours' professional practice to obtain a certificate of equal degree.)

In the Province of Victoria it is still more difficult. Candidates for teachers' certificates of the first class are required to pass certain university examinations in addition to attendance at the Normal School. As a necessary result, the supply of teachers is less than the demand—hence, there is no "hiring for terms" in Australia, no moving round from Jericho to Jerusalem, or Dan to Beersheba, as with us; every teacher is a civil servant of the government, and once he receives an appoint-

ment he holds it until promotion or death calls him to a higher sphere of labor. Principals of schools are provided with houses, or their equivalent in money. Teachers are paid salaries in accordance with the grade of their certificate, and the average attendance at their school. It gave me much pleasure to notice a recommendation similar to this in the biennial report of the Hon. Ezra Carr, our worthy State Superintendent. (See, page 18, par. 14.) The salaries vary from $500 to $3000 a year. They are paid extra for teaching Latin, French, Geometry, and a few other subjects, and for training pupil-teachers; and the wives of married teachers (when there is no female assistant) are required to give two lessons each week to the girls in needle-work, for which there is an allowance of $60 a year. It is $100 in New Zealand.

With such inducements to continuous application and personal effort, it must be easy for Australian Superintendents to have a comparatively perfect school organization. How difficult is it here, where the majority of our teachers are engaged only one-half the year, and must live on the proceeds, starve, beg, or work at some very dissimilar, unprofessional and uncongenial calling during the rest of the year, seldom being two successive terms in the same school. This periodical intermittent arrangement is, I believe, a serious loss to the profession and the public. As teachers are hired only for part of the year, and are uncertain of employment at all other times, it follows (according to a well-known law of political economy) that they have to receive a higher rate of pay relatively for the time employed than if they were engaged the whole year. Besides, were the orders of the profession graded a little more accurately and the people disposed to engage their teachers by the year, or during mutual pleasure, as in Europe, Canada, and Australia, they could have the teacher's continuous services for very little more than they pay at present. The present intermittent arrangement is extremely weak, faulty, and unwise—utterly unworthy of a great and enlightened people. California ought to be as well able to pay her teachers as any of the States just mentioned, but, the truth is, she will never do so until the legislature, the profession, and the people have a sort of tacit understanding that (1) the standard of education must be raised, that (2) every public school must be kept open at least ten months in the year, and that (3) teachers shall be employed during mutual pleasure or good behavior.

(END OF FIRST PAPER.)

THE CREDIT REWARD SYSTEM.

BY E. H. BRADNER.

[Elk Grove, Sacramento County.]

Any plan or system that promises to increase punctuality and attendance in our schools is worth investigating. To be of real value, such plan must be simple, practical, and economic of time and money. A system answering all these requirements and successful beyond all anticipation, has been in use by the author during the past four years. But an outline of its operation, in the hands of working teachers, can be given in the columes of the JOURNAL. (Further information can be obtained by letter to the address at the head of this article.) The peculiar efficacy of this system lies in there being a "something to it" that the child *sees* and *possesses*. The credit tickets used are *tangible*, and can be *counted*—they are individual property, which can accumulate till a desired object can be obtained.

I find it best to begin the second or third week after the opening of the school, if new, by telling the pupils the plan; what it has done in other schools; and how nice if we can do as well; that I will give them

two little tickets each day (showing them)—one for each half day—will give them out the first thing in the morning; that tardiness, any time, forfeits one (it may be well to redeem it on a written excuse); that misdemeanors are liable to forfeit one or more, and that whispering forfeits one or more. How this great difficulty of whispering can be successfully overcome will be explained further on. When five "1-credits" are obtained, they can be exchanged for a "5-credit," and five of these for a "25-credit," and finally, all obtaining 100 credits in a given time (usually eleven weeks) are entitled to a premium (picture or other) and belong on the Roll of Honor.

It will be urged that this will do for the little ones, but practice proves that the older ones—those that "feel" themselves above such things—and the vicious, that seem to yield only to the rule of fear, *invariably* come to feel the desire to possess as many credits as any one else. To be sure tact must be used to make it *felt* an honor to acquire, and a disgrace to lose, but in a short time the desire to obtain, and the dread of doing that which will result in loss, seems incredible to one who has not tried it. Those powerful incentives, pride and emulation, are made keenly alive. Almost invariably, nothing short of parental authority will be sufficient to keep a pupil from school. While absence and tardiness are thus reduced to a minimum, the government of the school is rendered comparatively easy, and a discipline acquired that would otherwise be impossible. Such is but an outline of the practical results of actual experience.

Whispering is reduced to a comparatively small item in school government by this system. The majority, perhaps, of the pupils will stop entirely, but others will continue "on the sly," and of course a watch must be kept on the school all the time. It will be readily conceded that if it were possible to stop entirely both whispering and communication by slate or paper, *voluntarily*, this vigilance would become unnecessary; each one could not well attend to business other than his own; the government would almost "run itself," and the teacher's time could be employed where most needed. *This has been accomplished*, and can readily be by any earnest working teacher by the aid of my system of "whispering rewards." As the plan is comparatively new, it will be necessary to give it in detail somewhat. It is best to get the consent of the school to try it. I find a little talk, showing the advantages to be derived from a school free from whispering, is sure to secure their willingness to try it. Tell them that it will be hard work; that they will fail more than once, perhaps; but if we work faithfully *together* we will surely win in the end. Say that "each one will try and not whisper all day; if you catch yourself whispering, *stop right off;* don't even finish the sentence; don't answer any questions, and soon you will *think* in time. At night I will ask all to raise their hands that have not whispered, and you will answer me honestly, for we are all tuying to do our best. At the end of the week I give each one not having whispered one of these tickets. It reads, 'WHISPERING, PERFECT ONE WEEK.'" Some will not have their hands up, and I will ask each how much he has whispered, if he tried to stop when he found himself at it, if he whispered *first*, if he was answered, and thus caused another to whisper, and if he will not try to do better next day. On the morrow the same questions come, and every day while there are any hands not up. The most perverse cases get ashamed of the inevitable questions and stop. After the first few days there will be but little time needed to question the few who have "forgot," and before you think it possible, there will come *days* and WEEKS when every hand is up. There is in this practice much less

liability to falsifying than would seem credible. I was once as skeptical of such a plan as any teacher that reads this. But as a check, it may be well to allow a "challenge," requiring the accuser to repeat the words whispered or written, and then if a question between two only, with no previous doubt as to veracity, to give the accused the benefit of the doubt.

Then to feel, as I have felt, the relief from the wearing care of a ceaseless watchfulness, and to know that of their own choice the pupils are attending each to his own business, and I am left free to attend to mine—the teaching—to feel and know that the school has become its own best governor, is a reward worthy an earnest effort. This is no untried theory, but the result of *actual experience*, which may become that of any teacher worthy the name.

TRAINING IN THE USE OF ENGLISH.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

PAPER NO. III.

After a class has learned the general rules for punctuating, it is a good plan to direct them to write down and punctuate a short extract from their Reader, which the teacher reads to them, having selected it for its adaptation to that purpose. Then let them compare their work with the passage in the Reader, and they will probably be surprised at the difference. As a general rule, no mark of punctuation should be employed unless a reason can be given for using it. No less eminent a personage than the Dean of Canterbury has not thought it beneath his dignity to notice the over-working of commas and interjections. He says :

"I remember, when I was young in printing, once correcting the punctuation of a proof-sheet, and complaining of the liberties taken with my manuscript. The publisher quietly answered me that *punctuation was always left to the compositors*. And a pretty mess they made of it. The great enemies to understanding any thing printed in our language are the *commas*. And these are inserted by the compositors without the slightest compunction on every possible occasion. Many words are always hitched off with two commas ; one before and one behind. *Too* is one of these words ; *however*, another ; *also*, another, the sense being frequently disturbed, if not destroyed, by the process. I remember beginning a sentence with : 'However true this may be.' When it came in proof, the inevitable comma was after the 'however,' thus of course making nonsense of my unfortunate sentence.

"Take a case where meaning is intensified by adjectives being repeated, as in *the wide wide west, the deep deep sea*. Such expressions are almost invariably printed *the wide, wide west, the deep, deep sea*, thereby making them nonsense.

"While I am upon stops, a word is necessary concerning notes of admiration. A note of admiration consists, as we know, of a point with an upright line suspended over it, strongly suggestive of a gentleman jumping off the ground in amazement. These *shrieks*, as they have been called, are scattered up and down the page without any mercy. If one has written the words, 'O sir,' as they ought to be written, namely, with the plain capital 'O' and no stop, and then a comma after 'sir,' our friend the compositor is sure to write *Oh* with a shriek (!), and to put another shriek after 'sir.'"

Wit, humor, and good fun are always welcome, but vulgar or slang phrases must be condemned at once and forever. These offences against good taste are not, however, so likely to occur as the faults that result from hifalutin or affected fine writing. Forgetting that the style of the best authors is distinguished by simplicity, and that

common words are the most expressive, young writers, and sometimes those who ought to know better, are unwilling to use the language of the people, but indulge in far-fetched words and high-sounding phrases. They will not say ordinary things in an ordinary way. They don't begin, but always "commence." They don't live, but "reside." They don't give, but "donate." They don't eat or drink, but "partake of refreshments." They were not born in a place, but it was "the place of their nativity." Instead of dying at last, as other people do, they "decease." The difference between hifalutin lingo and common language has been well illustrated by translating the former into the latter, side by side, as follows:

PENNY-A-LINING.	ENGLISH.
A person rejoicing in the cognomen of Smith.	Mr. Smith.
Employment will be given to the votaries of Themis.	The parties go to law.
The fire fiend extended his ravages to the adjacent edifice.	The next house was burnt.
The performance of the National Anthem brought a delightful evening to an appropriate termination.	The concert ended with Yankee Doodle.

If a man steals money from a treasury, he is not a thief, but a "defaulter." Peculation becomes "speculation," and masks its iniquity by putting a letter before it. "The glorious orb of night might have been seen slowly ascending, and as slowly enlarging, until the mighty queen stood revealed, empress of the blue firmament." That is, the moon was rising. "The last blushes of day had but just faded from the golden Occident." That is, it was night.

A lady once told me that "her grandfather's fences, which she fondly imagined would have stood the test of ages, were laid prostrate." How much more forcible is this way of putting it than merely to announce that the fences were blown down!

The following is a report from the "Sacramento Union" of the commencement of a speech in the legislature by a gentleman who once had considerable reputation in California for eloquence:

"Mr. Speaker—I rise to a question of privilege, or to a privileged question. I inaugurated a movement on yesterday, of which recent developments require some elucidation. My action was predicated upon information derived from the ———, a journal from which I seldom, if ever, expect the enlightenment or the revelations of truth. I presume that the gentleman from Nevada, when he asseverated on yesterday," etc., etc., etc. How long could you listen to such talk as this? If Cicero had addressed Catiline after this fashion, the latter would have banished himself from Rome *instanter*.

Some pleasant verses have been written upon the subject of calling things by their right names:

"Of old, a 'spade' was called a 'spade'
By simples and by sages;
A 'workman' did his honest 'work,'
And 'servants' earned their 'wages';
A 'man' was title of respect,
Whenever virtue named it,
There was but one of higher worth,
And lovely 'woman' claimed it;
But now we masquerade with words,
The truth a great offence is,
And desecrate our English tongue
By pride and false pretences.

"We shame the language of our sires
We talk so mild and meekly;
We've 'operatives' for 'working-men,'
And draw our 'salaries' weekly.
Our 'lady' takes the place of 'wife,'
That word so true and hearty,
And every 'man's" a 'gentleman,'
Unless we call him 'party.'

"Oh give us back our honest speech!
It had a soul of beauty;
And let us do our daily 'work,'
And think it pleasant duty;
Let's earn our 'wages' as of yore—
The word can never harm us;
Let's love our *sweethearts* and our *wives*,
And own that *women* charm us.
So shall our actions like our words,
Be void of affectation,
And 'spade' be 'spade,' and 'man' be 'man'
Throughout the Yankee nation."

BY TELEPHONE FROM SAN DIEGO.

BY CHARLES M. DRAKE.

We have telephones and phonographs now in our San Diego schools, and I must say they work to a charm.

"It has always been so desirable," said Prof. Newman to me, "that each parent should be able to know the exact state of the school at any hour he chooses; and, now, he need not stir out of his house to hear just how the school is going on, and what has been done any day since school began. We set our phonograph at work in the morning, and every word and every noise is taken down upon the sheets of tin-foil, and remains a truthful and reliable witness of what has been said and done in the school-room from 9 o'clock until school is dismissed. No more carrying home to parents of tales, distorted and magnified by the youthful medium; no more unsettled questions of veracity when troubles arise in the school-room; no more careless and slipshod teaching, when the master knows that the record of how and what he teaches will be listened to by after ages, and by the teachers who follow him."

Here the Professor took his register and turned to a long list of corporal punishments kept by a previous teacher.

"Suppose the phonograph had been in this school-room while that man taught. Would it have pleased him to remember that the machines of future times might take the bits of tin-foil and grind out the blows of his switch or the thwack of his ruler, as an illustration of the barbarity of the present age? Yet every blow did leave marks as ineffaceable as if graven on tables of stone. By the way, don't you think that writing may be made a useless study, by these inventions?"

Miss Normal is sick to-day, and unable to go to her school-room. Does she dismiss school? No, indeed. The telephone that connects with the school-room is on the stand by her bed. At nine o'clock she directs an older pupil to call school, and, through the telephone, she appoints a monitor, hears the classes, and assigns the lessons, without stirring from the bed.

She has written a long letter to Prof. Allen to find out how they use the telephone at San Jose; and to ask the Professor to deliver some of his inimitable lectures into a phonograph, so that Normal graduates may get copies on tin-foil to use at the next "Philomathic," when they will also have music from tin-foil sheets furnished by our Philharmonic Society. "The Professor sent me a be-au-tiful letter," said Miss Normal, "and it made the tears come to my eyes as I turned the crank, and made it speak in the Professor's own voice. It was almost like one of the seances we used to have at San Jose."

Solomon Oldstyle won't have any telephone in *his* school-room.

"When you ketch a boy making up faces at you behind your back, and you pick up a switch and go for him, how is the telephone going to tell the boy's daddy that he (the daddy?) needed a licking. When Fred. draws pictures on his slate, and gets the other boys to laughing, it ain't the telephone he needs. And when Ed. tickles the boy's neck in front of him with a squirrel's tail, and I have to yell out, 'Come up here, you, Ned,' what does the telephone know about that?"

"Then there's Prof. French," continued Solomon in great disgust, "he's got a notion in his head that we ought to have all our books printed in new letters just like the ones the telephone makes. He says they are the natural letters, and are clear ahead of Bell's visible speech, and that where the child now has to learn four or five forms of every letter with his alphabet, they will then have but one form for each sound, and, so, can learn to read in less than half the time it now takes;

and a lot more of such durned nonsense. I can teach any child the letters in one or two terms, and does he expect me to go to school and learn the alphabet over again?"

"It's a wonder," concluded Solomon, "that that State Board hasn't had telephone on the brain before this time. I expect they will sit up in Sacramento pretty soon, and examine us here in San Diego."

Prof. Sharp is trying to make a bargain with the directors of two country schools, so that he can remain in his room in town, and teach all the pupils at their own residences, and thus save the expense of school-houses and school furniture. I cannot say just how he intends to make this work, but there are very many things about teachers and teaching that one can't hope to understand in this world.

N. B. As many teachers seem to think it necessary to give almost incessant orders to their pupils, I have prepared a set of "telephonic reprimands" which cover almost every case, and which when set a-going in the morning, will require no further attention during the day.

For further information, address

C. M. DRAKE,
San Diego.

PROBLEMS IN INTEREST.

BY PROF. GEORGE DAVIDSON.
[U. S. Coast Survey.]

PROBLEM.—To find the amount of a sum p invested for t years, compound interest being allowed at the rate r, paid yearly in advance.

At the end of the *first* year the amount will be the principal increased by the interest, or $p+pr=p(1+r)$. Then as the interest is paid yearly in advance, the above amount must be increased by the interest upon $pr=pr^2$; so that

$$s=p(1+r)+pr^2=p+pr+pr^2.$$
$$=p(1+r+r^2).$$

Since compound interest is allowed, this sum $p(1+r+r^2)$ becomes the principal for the second year, and the interest thereon is $pr(1+r+r^2)$. But the interest being paid yearly in advance the above amount must be increased by the interest upon $pr(1+r+r^2)=pr^2(1+r+r^2)$; so that $s=p(1+r+r^2)+pr(1+r+r^2)+pr^2(1+r+r^2)=p(1+r+r^2)(1+r+r^2)=p(1+r+r_2)^2$.

The sum $p(1+r+r^2)^2$ must now be considered the principal for the third year, and interest thereon, and the interest upon the prepaid interest will give us $s=p(1+r+r^2)_2+pr(1+r+r^2)_2+pr^2(1+r+r^2)^2=p(1+r+r^2)^2(1+r+r^2)=p(1+r+r^2)^3$. And in like manner of treatment we shall find that at the end of the tth year,

$$s=p(1+r+r_2)^t \ldots\ldots\ldots\ldots$$

Any three of the four quantities s, p, r, t, being given the fourth may always be found from the preceding equation.

If the unit of time is made one month instead of one year, then t will represent the number of months, and the interest will be compounded monthly, and each month's interest paid in advance.

Given the amount s, rate r, and time t to find the principal p.

$$p=\frac{s}{(1+r+r_2)^t}.$$

Given the amount s, rate r, and principal p, to find the time t,

$$t=\frac{\log\frac{s}{p}}{\log.(1+r+r^2)}.$$

Given the amount s, principal p, and the time t, to find the rate r.

$$(1+r+r^2)=\sqrt[t]{\frac{s}{p}}$$

Then subtract 1 from each side of the resulting equation, and $r+r^2=\sqrt[t]{\frac{s}{p}}-1$

$r+r^2=a$ the right hand member.

$$r+r^2+\tfrac{1}{4}=a+\tfrac{1}{4}.$$
$$r+\tfrac{1}{2}=\sqrt{a+\tfrac{1}{4}}.$$
$$r=\sqrt{a+\tfrac{1}{4}}-\tfrac{1}{2}.$$
$$r=\sqrt[t]{\frac{s}{p}}-\tfrac{3}{4}-\tfrac{1}{2}.$$

Find the *time* in which a sum of money p will double itself when compounded at r per cent. per month, the interest being payable monthly in advance.

Here s, p, r are given to find t; but with the condition that $s=2p$, then

$$2p=p(1+r+r^2)^t$$
$$2=(1+r+r^2)^t$$
$$\therefore \quad t=\frac{\text{log. } 2}{\text{log. } (1+r+r^2)}.$$

In like manner it may be shown that the time, t, in which a sum of money, p, invested under similar conditions will *triple* itself will be

$$t=\frac{\text{log. } 3}{\text{log. } (1+r+r^2)},$$

And it will *quadruple* itself in

$$t=\frac{\text{log. } 4.}{\text{log.}(1+r+r^2)}.$$

EXAMPLES.

In what time will $1 *double* itself at 1¼ per cent. per month compounded, and the interest being paid monthly in advance?

$$t=\frac{\text{log. } 2}{\text{log. } (1+r+r^2)}$$

Log. 2 =0.3010300

$$(1+r+r^2)=\left\{\begin{array}{l}1.00\\0.0125\\0.00015625\end{array}\right.$$

Sum 1.01265625 and its log. =0.00546205 : then

$$t=\frac{0.3010300}{0.00546205}$$ and making the division by logarithms we have

log. 30103=9.4786098
log. 546205=7.7373556

subtracting 1.7412542, and the natural number = 55.1130 months.

In what time will it *triple* itself on the same terms?

log. 3 = 0.4771213 log. = 9.6786288
log. = 0.00546205 log. = 7.7373556
months, 87.3520 = 1.9412732

In what time will it *quadruple* itself on the same terms?

log. 4=0.6020600 log. =9.7796398
log. =0.00546205 log. 7.7373556
Proof: 55.1130 × 2= months 110.2260 =.20422842

What will $1 amount to in 55·1130 months, invested at 1¼ per cent. per month compound interest, and the interest paid monthly in advance?

log. ·00546205log. =7.7373556
log. 55.1130 =1.7412542
9.4786098=log. 0.3010300 =$2.00000

A sum invested at compound interest for 55·1130 months at 1¼ per cent. per month, payable monthly in advance, amounts to $2, what was the principal?

log. .00546205 log. 7.7373556
log. 55.1130 1.7412542
9.4786098 log. =0.3010300=2.

$$\therefore \quad \frac{2}{2}=\$1.$$

What is the rate of interest upon a sum of money that has doubled itself in 55.-1130 months, the interest being compounded and paid monthly in advance?

log. 0.3010300 log. 9.4786098
log. 55.1130 = 1.7412542 Nat. No.
7·7373556 log. 0.00546205=1.01265625

.01265625
+.25
.26265625 log. 9.4193877
9.7096938=0.5125
—0.50
0.0125=¼ per ct. as required.

READING IN THE EIGHTH GRADE.

BY MRS. AURELIA GRIFFITH.

[Principal of the Union Primary School, San Francisco.]

[An essay read before the Training Class for Inexperienced Teachers.]

I.

Teaching reading in the eighth grade is my subject. Yet if I make Artemus Ward my illustrious model, and the subject disappears after the fashion of *his* "Babes in the Woods," please remember that old age is apt to wander, and should always outgrow the trammels of custom.

There are several ways by which reading is taught to beginners, from the A-B-C-method to the 'Whole-sentence method.'

No true teacher, however inexperienced, will unhesitatingly accept any one method, although a knowledge of all will assist her to form her own. As a whole, I prefer the Object method. In Calkins' excellent manual, a book that every teacher of young children should study, we are told that, "By the 'object method' of teaching read-

ing the attention of the children is first directed to some object with which they are familiar by sight, name and use. Whenever practicable, during the first lessons in reading, the object is shown, talked about, and its name spoken; then a picture of the object is presented, or a drawing of it is made on the blackboard, and the pupils are led to notice this as a picture of the object. Next the name of it is plainly printed," (I also have it written as well as printed) "on the blackboard or shown on a card. The pupils are now taught to distinguish the *object*, the *picture* of it, and the *word* from each other, as the cup, the picture of a cup, the word cup. Several words may be taught in this manner before the sounds or the letters of the word are introduced to the pupils."

I prefer to vary my first exercises by training the perceptive faculties. Taking a cap, after they thoroughly learn to discriminate between the real article, the picture of it, and the word for it—not always an easy task for them, many small children having assured me they could use the picture just as they would the actual object—I take the word cat, and let them discover the difference in sound and shape between the words cap and cat. Then a small lesson in numbers is introduced. They find how many letters are different, how many are alike, how many are in one word, how many are in both words, and hold up at each question a corresponding number of fingers.

Remember that in determining the difference in sound you should never refer to the signs for the sounds, only as names for form. As the *a* in ape and the *a* in cat look precisely the same, it is worse than a waste of time—it confuses children to introduce characters they never see until promoted to the use of dictionaries. Besides, it is far less trouble to teach the young child that the word ape represents our interesting progenitors, (according to Darwin) and that the word cat stands for that well-known animal—association of letters determining sound, just as they must determine the reading of the daily newspaper. Here let me ask, how many of you have any other literary pabulum than novels and newspapers? How many study our standard authors, or consult the published thoughts of practical educators? How many patronize our home efforts to crystallize school talent, talent not inferior to that expressed by Eastern ideas and practice? How many of you who say there is nothing worth reading in the PACIFIC SCHOOL AND HOME JOURNAL try to improve it by your own contributions?

But to return to our subject. It is much easier to teach children the name-sign for a known object, than to teach them arbitrary signs for separate and unmeaning sounds. Just so the child receives no idea that it can digest by being asked the sum of four and five, yet at once and intelligently replies when asked the number of four marbles and five marbles. Calkins says: "Children learn the concrete before the abstract; the whole before its parts"; and he might also as truly have said that not only should every symbol be taught as a whole, but should also retain the most simple and usual form. Were words usually printed with sound-signs marked over the letters, it then would be logical to explain each sign. Do not imagine, however, that I disapprove of phonologic training. On the contrary, I pronounce it the best means for correcting careless pronunciation, but with young children let it be, as they are, imitative. Let it appeal first to the ear. After a short conversational lesson about a donkey, for instance, you tell the children that though they know the picture of a donkey, you do not believe they can find the word, and in their excitement they will be quite likely to talk of the "*dunkey*." Fixing the attention of the class, say you wish them to speak like

ladies and gentlemen. Give them in sharp contrast the right and the wrong pronunciation. Then point to the letters while slowly repeating the sounds, and let *them* discover *where* the change occurs. Thus you simultaneously train the eye and the ear. Excite their desire to imitate you, by telling them pure sounds in speech mark people of education. Do not forget that by carefully training children in uttering, not memorizing the signs of the elementary sounds—of all of them, atonics and sub-tonics, as well as tonics— you insure a perfect pronunciation for all who are without organic defect.

Again I say appeal to their desire to become ladies and gentlemen. Let them learn from you in familiar conversation that it is *not* plenty of money nor fine clothes that distinguish the lady and gentleman. Such conversational lessons are good for the teacher as well as for her pupils. They, like the rod of Aaron in the strong hand of Moses, cause the pure water of love to flow from the teacher's work-fettered soul toward the simple prattlers.

Teach children how to talk. Rest them, and appeal directly to their hearts ; not by whispering recesses, in which they are unlikely to say anything that will benefit themselves or each other, and which will probably leave them in an unsettled, demoralized condition, but by a conversational lesson skillfully conducted, lead them to use language correctly. Two weeks ago you were advised to prepare even the lessons to be given an eighth-grade class ; and I was sorry to see on some faces a smile of derision. Do you still mentally ask what possible preparation can be necessary? If so, *you* have more confidence in *your* wisdom than *I* have in *mine*, even with nineteen years experience to help me. But to return to the subject of reading. Having judiciously selected a number of familiar words, whose position you frequently vary in columns, the written word always placed opposite the printed one, indeed two columes of each, with the words in a different order, are of great service ; let the little ones point to any word you call for, or if unable, find one in book, chart, or another column like the word you name and mark. This to them is as good as a play. Make them thoroughly familiar with these words, and able to pronounce them at sight before you allow them to read even the most simple sentence. First form short sentences, always beginning and ending properly. In this manner they learn the capital letters, and the correct use of them. In reading, do not point, nor allow the children to point to separate words. Place the pointer, or order it placed, at the *end* of the sentence, that they may learn to read smoothly, and connect the whole as one idea. Thus they are able to understand and give the proper expression to the sentence, instead of shouting the words separately as though there could be no possible relation between them. Use especial care in training them to correctly pronounce *a* and *the with* the following word and not alone : *a* cat and *ther* cat are really more incorrect than *ā* cat, *thē* cat. Better never teach a and the in your column of words, only as parts of other words in the column. Frequently, I am compelled to tie such words together so—a cat, the dog, before they can comprehend. As Calkins advises : "Let the standard for good reading be its resemblance to good conversation. If the pupil does not read in such a natural manner, request it to look at the teacher and *tell* what it read. When it can do this properly let it look on the book and *tell* it again. Thus train each pupil until the habit of reading in an easy, natural tone of voice, such as is used in a good conversational style, has become fixed. The teacher may illustrate how a sentence should be read by reading it correctly, thus cultivating the ears of the

pupils in good style. A good reader in the class may be selected to read a given paragraph or sentence, and each of the other members allowed to try to read it as well. Train the pupils to observe when two of their number read alike and *equally* well. Thus secure an *appreciation* of good reading, and use it in training the class to read correctly. When the lesson has been finished, let the children tell what they have read. At first they may give parts of the lesson without any order or connection. Accept these efforts at first, but ultimately train them so that the class can tell the story of any lesson read, in the *order*, of the events narrated, by *each* giving a short item of it. Encourage them in *telling* the story, to use their own language instead of repeating the words of the book. Avoid asking many questions about the lesson. Let the principal questions be, *What is this lesson about? What does it tell you?*"

So says Calkins. But on this last point educators differ. We have been instructed by our late Superintendent, who was considered an excellent teacher, to exhaust a line like this: "O Tom, come out quick, and look at the deer," by asking: Who is to come? Why is he to come? Where is he to come? How is he to come? What is he to look at?

Perhaps a golden mean might form the best method. A *few* judicious questions to lead pupils to give in their own language what they have read, is usually necessary until they acquire facility of expression; yet I consider such *leading* questions are worse than none. They suggest their own answers, and offer the child no mental effort. For the same reason, I prefer, especially for beginners, frequent change of order in the same words, and require my assistants to write an original lesson on the blackboard every day. The more interesting they can make the little lesson the better. If placed upon the board before school, or early in the day if they wish the children to see them form the letters properly, and not read until the afternoon, the pupils have an opportunity to study, and copy the lesson on their slates, while the teacher is hearing individual recitations. In our eighth grades, writing should keep pace with reading. The hand ought to be trained as thoroughly as the eye, ear, and voice. Lessons in the First Reader are too often simply memorized. The children read as readily with the book up-end-down as right-end-up. If they see the picture, they know the lesson. To avoid such an improper practice, I never use the book during the final examination to test their proficiency in reading. I select words from the Reader and charts, from which to form an original lesson to be written on the blackboard. Besides, they must be able to read an easy lesson from some other reader. They must also be able to understand the inflection usually required by the sense and punctuation. In teaching punctuation, require pupils to *stop* at a period, or use some form of expression that will not cause them to think a lower tone is desired, at the end of a sentence.

(END OF FIRST PAPER.)

There are teachers who say they are too poor to subscribe for an educational periodical. If this is true, they are too poor to teach, and should quit the profession. Poverty is too often urged to cover up the want of a strong inclination. When a teacher is determined to rise in his profession he will find some way to supply himself with educational food. There are some teachers in this country whose pockets are, for months at a time, free from the touch of money, that never fail to keep up their subscriptions to the school journals; while there are others whose pockets are never entirely empty, that never subscribe at all for school journals.—*Ohio Educational Monthly.*

EDITORIAL DEPARTMENT.

Over Production.

California is a country of anomalies. We have a magnificent area of arable land; an unsurpassed climate; rich mines of gold and silver, of iron and mercury; good coal at our command; the products of the tropics as well as of temperate climes; silk and cotton, if we want them; corn and wine in apparent superabundance. And yet we are neither contented nor comfortable. In the midst of apparent plenty, of the greatest profusion of all that Nature can bestow, thousands are in want—many in positive distress. It is true our area is large and our population small, but the fact remains—every profession, trade, or occupation is already over-crowded, even here in this wonderful El Dorado.

It is not for us, now and here, to speculate on the causes of this anomaly. The daily Oracle, whose wisdom illumines every nook and corner of the American soil, does this for us, to its own satisfaction at least.

We cannot but deplore, however, that this disproportion between supply and demand is beginning to exist in a marked degree in our own profession. In figures very startling, we see that we have already in our midst twenty-five per cent. more teachers than can possibly be supplied with positions. In other words, there are one thousand certificated persons in California, who cannot obtain steady employment in the occupation for which they have, to a greater or less extent prepared themselves.

It would be idle to speak of this were there not some remedy. That we can suggest fully efficacious relief, we are not prepared to say. Yet a hint may be both timely and of service to our cause. At present, in addition to the State Normal School, the San Francisco Normal School, and the various high schools, there is scarcely a first-grade district school in the State which does not train one or more of its pupils for teaching. The teachers of these schools point with the greatest pride (and this perhaps is pardonable) to the number of pupils they have prepared successfully for teachers' examinations. This, in addition to the constant influx of Eastern teachers, is the cause of the present "glut" in the "teacher market." And if this excess of supply continues, the results are obvious. Lower salaries, poorer schools, less *esprit de corps*, and a consequent pause in our educational progress will be inevitable. So let our teachers think, and halt.

Postponement of the Meeting of the State Association.

The Executive Committee of the State Association of Teachers held several informal meetings in San Francisco, early in June. After considerable discussion, they came, unanimously, to the conclusion to postpone the meeting of the Association to the last week in September.

It was suggested that as the Constitutional Convention meets in September, it will afford teachers an opportunity of conferring with delegates in regard to educational clauses in the new constitution.

Another reason for postponement is the fact that it will be very difficult, at this time, to secure a good attendance of County Superintendents. The school year closes on July 1st, and their annual report must be made out at that time, thus preventing their absence from the county seats.

Still another reason is the fact that the date originally fixed comes in the middle of the summer vacation, when teachers have gone for rest and recreation to remote parts of the State, and when the sun is hottest in

Sacramento. In September, the air is cooler, the schools are having their short, autumn vacation, and a more general attendance may be anticipated.

We trust to see a large number of teachers present, as this meeting will be a very important one. A professional body will probably be organized, which will have a decided influence in moulding and directing the educational future of the State.

Some teachers of our acquaintance are evidently laboring under a strange misconception of their duty in regard to sustaining an educational journal. With charming simplicity, they sometimes say to us: "What a splendid journal you are publishing! I can hardly wait for the first of the month; and Miss A no sooner gets her copy *than I borrow it*, and read it before she does."

Another says: I am *so* glad my trustees subscribed for the JOURNAL for our library. I take it home, and keep it there until every word is read."

This is a verbatim repetition of remarks quite frequently made in our hearing.

We have a few words to say, in all seriousness, to those of our readers to whom the words apply. It should be beneath the dignity of the teacher to borrow an educational journal—in fact, no true teacher will do so. What would be thought of a lawyer who constantly borrows a commentary on law, or a physician who borrows a text-book on medicine?

So every teacher should own, at least, one educational journal; and if its merits do not reach the high standard he considers necessary, his earnest endeavors should strive to supply every deficiency, and make it in reality an aid to the educator.

Another point we desire to have understood. There are already many copies of the JOURNAL subscribed for for the District Libraries. These copies belong strictly to the library, and not to the teacher. They are for the use of trustees and pupils, and should not be taken from the school-room, except in the same manner as are other library books.

We trust no teacher will consider himself absolved from the duty of subscribing for the JOURNAL, because his district takes it.

Answers to Correspondents.

A "Subscriber" inquires it a certificate which has expired by limitation of time can be renewed.

Our answer is, No. To be renewed, application for renewal must be made and granted on or before the day when the old certificate expires.

A Superintendent "wants to know" when the School Law, as amended by the last legislature, will be ready for delivery to superintendents and trustees.

We are authorized by the State Superintendent to say that it will not be ready until some time after July. The appropriation for printing for the fiscal year, 77–78, has been exhausted, and so (as a matter of course) printing for the educational department will be attended to *last*. The State Office of Instruction has received requisition for School Registers from various parts of the State, which it is not able to fill, simply because money enough has not been left in the printing fund to print them.

So teachers and superintendents see that a little of that useful quality—patience—will be needed.

Of course it is natural for us to be deeply gratified with the ever increasing marks of approval received from the teachers of this coast. Nearly every Institute that has met for the past two months, has warmly endorsed the JOURNAL, and recommended it to the patronage of teachers and trustees. In only a few counties, which are educationally *dead*, has this courteous recognition of our services in the cause of educational development been omitted. We do not blame teachers for this. Without the cordial co-operation of the Superintendent, progress in education can be but slow. As is the Superintendent, so is the county. As long as third-rate politicians or fourth rate teachers are elected to the superintendency, so long will the cause of education suffer.

We favor electing the best teachers to the superintendencies, and of paying them the best salaries. In many counties ot this State, we have able men, who are unselfish enough to do their whole duty, and to do it well, on totally inadequate salaries. On the

other hand, we have men who eagerly seek the office of Superintendent, and when elected use the salary so obtained to get a foothold in some other profession—as law or medicine.

The JOURNAL will always favor teachers for the superintendency, will advocate paying them good, living salaries, and will cordially promote their every endeavor to improve our schools. And if our circulation and influence keep on increasing, as at present, our power to do these things will soon equal our will.

An Apology.

During this June vacation, the Editor of the JOURNAL has traveled considerably through this State, attended Institutes, visited schools, and conferred with teachers and superintendents. He has been in San Francisco but little during the month; and has, consequently, been rather remiss in attending to the correspondence of the office. There are many letters on hand to which answers are due, and which will receive prompt attention, now that the schools are again in session. We hope this explanation will prove satisfactory to all who have favored us, and who have wondered at our delay.

We take this opportunity, furthermore, to invite correspondence from the teachers and school officers of the State. We shall be pleased to hear from them frequently on aught pertaining to education.

Two illustrations, showing that minds working independently on the same subject, frequently arrive at similar conclusions, have lately come within our observation. About six months ago, one of our ablest contributors, Prof. Ingham, of Sonoma County, sent us the MSS. of an article entitled "Effects of Pernicious Habits of Reading." The article was put in type, but other matter has had precedence, and it will not appear until our August issue. In the meantime, Prof. Sumner has published an article in *Scribner* on the same subject, and treated in almost the same manner.

A similar coincidence is in relation to the excellent article by Mrs. Griffith in this month's JOURNAL. We have had the MSS. of the article for six weeks; about two weeks ago, we found in a Boston journal an article on the same subject, containing ideas very similar in character, if not in expression. "It is," so a friend expressed it to us, "as if the woof of Thought were omnipresent, and as if, here and there, different individuals often seized upon the same tangled skein."

We have brought out the JOURNAL this month nearly two weeks behind time. This has been on account of the long summer vacation just past. Our schools have been closed, and teachers have been away in the mountains or by the seashore, so we concluded to defer our issue until a majority, at least, had returned to their homes and their labors.

We promised ourselves, a short time ago, to write a pressing invitation to C. M. Drake, of San Diego, to invite him to continue his bright and enjoyable sketches for the JOURNAL. And so many teachers have lately spoken in terms of the highest praise of his articles, that we conclude to make the invitation a public one. So now, Mr. Drake——.

We hope our friends all over the coast will bestir themselves actively in still further increasing our circulation. We shall not begin to be satisfied until our list of names reaches, at least, ten thousand; and until our influence in favor of good schools, good teachers, good superintendents, and good salaries is paramount on this Pacific Slope.

Our readers will bear in mind to read our PUBLISHERS' NOTES on advertising page 10. There are a number of new announcements this mouth of considerable importance.

We are disappointed in not being able to present to our readers the article by Prof. Scott, of Japan, which was announced in our June number. At date of writing it has not yet come to hand, though we expect it by the steamer from Japan already due.

We are indebted to Mr. Hubbard, agent of the Bell Telephone Company in San Francisco, for the cut illustrating the article on the Telephone in this number.

GENERAL NOTES.

CARE OF THE VOICE—Mr. Eichberg, Supervisor of Music in the Boston schools, gives the following caution. It is well worth heeding:

"'The age of most of the pupils in the high schools renders extreme caution in the treatment of their voices a duty and a sacred obligation. The common belief that boys' voices *alone* require especial care during the period of transition has led to much loss of voice and of health. Just as important, if less striking, changes occur in the nature and 'timbre' of the female voice. I am satisfied that the voice of a girl from twelve to seventeen years of age requires all the more careful management from the very fact, that, not suffering like a boy, from an almost absolute impossibility to sing, she is likely to overexert herself, to the lasting injury of both health and voice. When teachers are better acquainted with these physiological facts, they will understand the necessity of not sacrificing such young—such temporarily diseased voices—to the desire of exhibiting and showing off their classes.

"'Another frightful cause of injury proceeds from the desire of many female pupils always to sing the highest part—the first soprano. It is with them "*Aut Cæsar, aut nullus.*" Periodical examination of the pupils' voices, by the teacher, has seemed to me the only safe course in order to remedy this evil.'

"In Jenny Lind's younger days, it is related that she applied for instruction to Garcia, the great teacher of vocal music in Paris. He heard her sing, and then told her her voice was gone, that she must not sing a note for a year, and return to him at the end of that time, and in the meantime improve her health. She faithfully complied with these directions, and came back to Gracia at the appointed time. Rest, at a critical period, had restored her voice, to her own delight and to the gratification of her master. From that moment a grand career was open before her.—GEO. W. MINNS.

"An 'exhibition of scholars' work' will be opened, June 15th, at 737 Broadway, New York. The pupils are notified to prepare at once to send the following things: A specimen of penmanship; this will be a copy of the first twenty-four lines of Longfellow's 'Morituri Salutamus,' on a sheet of foolscap paper, about 8x12 inches, the paper to be ruled. A drawing from an object, the paper to be 8x12 inches, the object to be selected by the pupil. A design, by the pupil, on the same sized paper. A map of the New England States on paper of the same size. Any other school work that the pupil may choose and that seems appropriate. Black ink must be used; the writing must be distinct; colors may be used on the map, which must not be traced; the full name, age, and address of the pupil must be in the middle of the lower edge of the paper; the teacher must certify on the back that he believes it to be the unaided work of the pupil. Every article must be rolled, not folded. Suitable prizes will be awarded, but what they are is not mentioned.

"Could not an interesting exhibition of this kind, with or without prizes, be got up in San Francisco? None exactly like this proposed in New York has ever taken place in Boston, but we have every year an exhibition in Horticultural Hall of the best drawings made in the different classes of the grammar and high schools. These are very creditable, and the hall is thronged by citizens admiring them during the three days in which the exhibition is open. No prizes are given, but the drawings are marked by the examiners with 'honorable mention,' or 'excellent,' according to the degree of merit. I am certain that the citizens of San Francisco would be delight-

ed with such a sight, and their interest and pride in the public schools increased by the spectacle."—GEO. W. MINNS.

Since Prof. Agassiz died, no man has passed away whose death will be so severely felt in both Europe and America as that of Prof. Joseph Henry, of the Smithsonian Institute at Washington. But two or three months ago, the public learned with satisfaction that through the liberality of a few cultured and public-spirited men, a fund had been created, the income of which was placed at Prof. Henry's disposal. This was but a slight tribute of acknowledgement to a man who was not only known all the world over. as a scientist of the highest rank, but who had made more than thirty highly valuable and useful inventions, none of which he patented, but all of which he freely gave to humanity. Prof. Henry was born about 1798 and was, consequently, eighty years old at the time of his death. In 1830, he worked out (a fact not generally known) those principles of electro-magnetic action which resulted in the invention of modern telegraphy. In 1846, he was appointed Secretary of the Smithsonian Institute, holding that position until his death. As Secretary of the Smithsonian Institute, Prof. Henry has been identified with all the scientific progress of the New World. It would be impossible here to enumerate one-half the discoveries and inventions made by him. The telegraph and the telephone are direct applications of his expositions of the "method by which electro-magnetism may be employed in transmitting power to a distance." A well devised system of fog signals was elaborated by him ; and "Old Probabilities," which has saved millions of property and thousands of lives by its timely notification of coming storms, originated with him. Both for his deep love of scienee and for his unselfish devotion to the intellectual advancement of his race, he was an ornament to his country and a blessing to mankind.

KINDERGARTENING.

Under the stimulus of Miss Marwedel's noble devotion to the cause of the new education, we are pleased to chronicle considerable progress in that cause during the past three months. Of Miss Marwedel's model kindergarten class in Oakland, we have already spoken. It is flourishing, increasing in numbers, and in reputation.

Under the auspices of the Froebel Educational Association of California, and to be instructed by Miss Marwedel, a kindergarten normal class has been established in Oakland. This school will open in October, and the term will end in June. Certificates granted to those who complete the course will be recognized by the International Froebel Union, at Boston.

Another advance accomplished by the enthusiasm and perseverance of Miss Marwedel, is the establishment in San Francisco of a class for teaching girls wood carving, engraving, etc. This class is to be established by the Young Women's Christian Association, a society which in quiet, unostentatious ways is performing a thousand acts of charity. We predict that this class, which will be organized in September, will be the germ from which will spring a well-devised system of practical education for girls, a system which will work untold good in this commonwealth.

GRADUATING EXERCISES OF OUR SCHOOLS.

THE STATE UNIVERSITY.

The ninth annual commencement exercises of the State University, took place at Berkeley, June 4th. There was a large attendance, including many members of the Board of Regents, Governor Irwin, and some prominent members of the San Francisco Bar. The orthodox salutatory,

valedictory, etc,, were replaced by an essay and two orations.

There were twenty-six graduates, including three young women.

After the presentation of diplomas by President Le Conte, Judge S. C. Hastings, founder of the Hastings Law College of the University, made a formal transfer of the College (or rather the endowment of $100,000 for that purpose) to the Regents. A reply was made by Judge Crockett, of the Supreme Court, and T. B. Bishop, of the San Francisco Bar.

THE STATE NORMAL SCHOOL.

The graduating exercises of this institution were held in Normal Hall, San Jose, before a large audience. The graduates numbered fifty-five, and are said to have formed one of the best prepared classes which has ever been sent out from this excellent State institution.

The valedictorian was Miss Alice Blythe, the salutatory was read by Miss Agnes I. Madden. A fine poem was read by Miss Kate M. Cozzens.

At the annual reunion of the Alumni Association, Supt. L. J. Chipman, of Santa Clara County, delivered a masterly oration on "Practical Education." It was eloquent and logical, as well as apposite to the time and place.

SAN FRANCISCO GIRLS' HIGH SCHOOL.

The graduating class of this school, John Swett, Principal, numbered one hundred and fifty-five, the largest number that has ever been graduated in this State. Thirty of these pupils formed a post-graduate, or normal class.

The commencement exercises were very brief, consisting of a few songs, and the valedictory essay by Miss Gussie Wentworth, and addresses by President Heister, of the Board of Education, J. S. Bacon of the Board, and Supt. Mann. Mr. Mann, in presenting the diplomas to the normal class graduates, made a few remarks, so appropriate to the occasion, and so full of suggestions to the profession that we give a brief abstract. Mr. Mann said: * * * "As a teacher, then, I bid you welcome to the ranks of the profession. I welcome you to its toils, its triumphs, and I must add, its disappointments. Do not suppose, however, that your work is here and now completed, or that the question of your fitness for a teacher's life is wholly settled. For of yon rather than of any others may it be said: 'Many are called, but few are chosen.' As knowledge of all the laws of trade and the science of accounts will not save a merchant from bankruptcy if he be wasteful or visionary; as a lawyer must have judgment, tenacity, and ready wit and clear expression as well as 'learning in the law'; as a doctor's diploma does not prove his conscientiousness, or sympathy, or many other traits that we demand in our 'family physician,' so the finest and most essential characteristics of the teacher are demonstrated only by experience.

"Montaigue says: 'The greatest and most important difficulty in human science is the nurture and training of the young.' Are you sure that you are ready to undertake it? We believe and have reason to know that you are in possession of the elementary knowledge that you will be called upon to impart. You have, besides, a year's instruction in the best methods of conveying that knowledge to the youthful mind. But whether you have the patience to guide the ever stumbling little feet of your charge, whether you have the discernment to perceive the obstructions in their pathway, whether you have the sympathy to enter into their little joys and troubles, so that you may heighten the one and smooth away the other, whether you have the spirit of consecration to your work—the noble sentiment of duty—that shall dignify your daily task and make a money recompense seem sordid and of little worth in comparison with the beauty

and nobility of your toil—time alone can tell. The possession of a certificate or diploma is no proof that you have these essential qualifications of the successful teacher. If knowledge were the only requisite in our profession we might have a well-grounded fear that we should shortly be superseded by the phonograph. The Board of Education might save the taxpayers half a million yearly by having Mr. Swett talk into the little machine his Grube lesson in arithmetic, or directions for a calisthenic exercise, and the tinfoil impressions might then be taken into the class-room and ground out by some patient janitress at a dollar a day! But the servant cannot be above its master; no mere mechanical device can take the the place of the human soul—its maker and superior.

"I hope none of you will ever become a routine or mechanical teacher—doing just so much task-work in just such a manner, for just so much pay. Indeed, success cannot be achieved in any trade or profession with such a spirit. The highest results come when work is performed with a poetic inspiration or a religious fervor. We have all of us known watch-makers who delighted in the fine efforts of their hands, boat-builders who invested their vessels with almost a human interest, authors who loved their books like their children, and antiquity tells us of a Pygmalion who became enamoured of the statue which he himself had made. So should it be with you. If you are not stirred to the depth of your souls with a sense of the enormous responsibility of your undertaking, turn back while there is yet time. The State will intrust you with the moral, intellectual, and very largely with the physical training of its citizens. The character of the coming age will be largely of your forming. See then that you possess far more than is vouched for by this diploma. For you are not to be merel the peddlers of so many facts of arithmetic or geography. You are to be also parent, sister, counsellor, and friend to those intrusted to your care. Only as you know and feel this are you fit to be teacher—to write your names beside those of Emma Willard and Horace Mann, and thousands of others less known to fame, whose memory is cherished by the men and women that are doing the effective work of this generation."

BOYS' HIGH SCHOOL.

The '78 graduates of this school, W. T. Reid, Principal, numbered twenty-seven. The commencement exercises included some creditable compositions on scientific subjects, and experiments in physics. The diplomas were presented by Dr. Fisk, who made a short address to the graduates, reminding them that a diploma by no means signified that their studies were ended. On the contrary they were just begun. He advised the boys to be courageous and "face the music"; not to become "sour on the world," as the phrase is, and impressed upon them the necessity of rectitude.

Director Legett followed, saying that the reputation of the public school rested with its graduates. He said he heard a man say recently that the public school system of this city was merely turning out hoodlums, because it gave boys and girls an education above their station. This sentiment he characterized as preposterous, and to be denounced in unequivocal terms.

Director Taylor said that the boy who was prevented from acquiring knowledge from others or books often led all the others in the race of life, although in saying this, he did not wish to detract from any graduate. "When I hear a man say that the public school educates a boy above his position," said the Director, "I take it for granted that he has been educated as an aristocrat, and knows nothing of the inside work of public schools."

Director Sullivan also made some remarks, saying among other things that he believed in schools and universities, and saw in them an assurance of safety to free institutions and a guaranty of the best human liberty. He laid stress on the boundless value of learning, quoting the maxim, "Knowledge is power," and citing from history to prove the power of the educated man over those who are not.

WASHINGTON COLLEGE.

This excellent and popular school, located at Washington, Alameda County, under the Principalship of Dr. S. S. Harmon, assisted by Mrs. Harmon, and a large corps of capable teachers, closed its sixth year, with a graduating class of eight.

The closing exercises were of a very interesting character, and indicated a high order of literary and musical training.

OAKLAND HIGH SCHOOL.

This school, under the very able training of Prof. J. B. McChesney, is one of the finest educational institutions on this coast. The graduating class of '78 numbered twenty. The exercises were of the highest order, the class songs being well rendered, and the essays and elocutionary exercises noticeably superior. The classes of this school are taught by J. B. McChesney, C. B. Bradley, Miss L. Temple, Miss Irene Hardy, Mrs. Ginn, and Miss Walbridge.

THE SAN JOSE HIGH SCHOOL.

The graduating exercises of this school took place before a large audience in Central Hall, San Jose. Mr. James G. Kennedy is Principal. The class of '78 consisted of twelve pupils. The salutatory and valedictory essays indicated a high order of literary ability, and the musical exercises were especially excellent. Mr. Kennedy has done splendid work in this school, and it is only since a year or two that the name high school has been appropriate. He is ably assisted by Thos. E. Kennedy, E. H. Lighthall, and I. F. Kleuk.

VALLEJO HIGH SCHOOL.

Under the able and scholarly training of Prof. C. B. Towle, the high school of the small city of Vallejo has attained high standing among similar institutions in the State. The graduates of '78 numbered nineteen, including one girl of African parentage. This is the first colored girl graduated from any high school in the State; and we understand that she ranked among the highest in her class.

LOS ANGELES HIGH SCHOOL.

We have had occasion heretofore to speak in terms of praise of the excellent condition of this school, under the capable management of Prof. C. H. Kimball. The graduates of '78 were eleven in number. The commencement exercises were of an unusually interesting character, and were much appreciated by a large audience.

SACRAMENTO HIGH SCHOOL.

This excellent and well-trained school held its commencement exercises in Metropolitan Theater, Sacramento, before an audience, which completely filled that large building. There were twenty-one graduates, and the literary and musical exercises were of the highest order. The salutatory in Latin was by F. H. Kiefer, the valedictory essay, entitled, "Know Thyself," was by Miss M. C. Breckenfeld. There was also an oration in German, which was pronounced excellent. This school excels in its classical course, though every department is taught by teachers of efficiency and rare culture.

Prof. O. M. Adams is Principal, Prof. Kirke W. Brier, Miss Folger, and Mrs. Colby are assistants.

SANTA CRUZ HIGH SCHOOL.

The schools of this city, under the efficient and scholarly supervision of Prof. W. W. Anderson, are in excellent condition. Prof. Anderson's graduating class numbered four. By their essays, we judge them to have been more than ordinarily well prepared.

SANTA CLARA COLLEGE.

This is the oldest collegiate institute in California, and ranks in thoroughness of training, and in its advanced curriculum with the State University. In fact, in its magnificent supply of physical and chemical apparatus, its laboratory, and its fine library, we believe it to be superior to that institution. Santa Clara College has graduated during the past twenty-five years many of the best scholars and ablest men of this coast.

The class of '78 numbered nineteen graduates. The commencement exercises were of a very high order. Among the faculty of this college is the well-known Father Neri, formerly of St. Ignatius College, San Francisco, who is universally recognized as one of the ablest physicists in the United States.

MARYSVILLE HIGH SCHOOL.

This school, Prof. E. K. Hill, Principal, closed its session with very interesting commencement exercises. There were three graduates in the '78 class. Prof. Hill has done much to improve the efficiency of this school, which occupies a high rank among similar institutions in this State.

There are a number of other high schools in this State, but we have not heard if they have graduated classes this year, or not.

CORRESPONDENCE, NOTES, AND QUERIES.

The Plural of Eucalyptus.

EDITOR JOURNAL: Some three or more months past a question appeared in the columns of the JOURNAL, inquiring for the plural of *eucalyptus;* whether *eucalyptuses* or *eucalypti*. The answer to the question, which was apparently editorial, decided in favor of *eucalypti*, stating in connection therewith that the word followed the same rule as *cactus*, whose plural is *cacti*.

As I have just been reading an article in the *Pacific Rural Press*, in which the writer makes use of *eucalypti* several times, I am induced to take up the discussion of the point and argue a little in favor of giving eucalyptus a regular plural; and I do this the more willingly since our language is constantly receiving terms from all the more prominent modern languages and newly coined words from the old Latin and Greek, and I think it of the greatest importance that we at once adopt the general plan of making every word thus brought into the English language strictly English, and amenable to the rules of English Grammar. Unless we do this, in a few years our grammar will be a confusion as bad as Babel itself, with plurals and terminations from all the languages of the earth.

I have no doubt but there are many persons who think it an evidence of fine taste in speech or in writing to use foreign words, giving to them grammatical peculiarities belonging to the language from which they are taken, but to my mind and ear there is a stiltedness of style and an affectation of much learning about that kind of talk that is shocking.

Cacti is very good in a pure Latin sentence, where the rest of the words are Latin, but to see it taken up bodily and set into an English sentence reminds me, not of the glittering diamond set in gold, but of the patch upon the knee of shabby gentility—especially since *cactuses* will sound as well, and even better when we once get accustomed to it. Who would think of saying *chori* for *choruses*, or *iambi* for *iambuses*, *boli* for *boluses*, or *'bi* for *buses*, those everlasting attendants of railroad depots and hotels? Who would say *actores* for *actors*, *honores* for *honors*, *ideae* for *ideas*, *camelliae* for *camellias?* And yet these words are all as pure Latin as *cactus* or *incubus*, and better than eucalyptus, which is not Latin at all.

In the same way I might ask what is the plural form of *iris*, of *verbena*, of *plexus*, of *cancer*, and of a whole catalogue of words of similar derivations. Certainly not *ires*, *verbenae*, *plexi*, and *canceres*, but *irises*, *verbenas* *plexuses* and *cancers*. These words are all Latin; the very purest; native and to the manor born. They are all regular in their plurals, nor is there any reason why any other word should carry with it into the English language the grammatical inflections of form it had in the language from whence it came.

I know very well that it is desirable to transplant with a word enough of it to enable the student to identify it, but that is no reason why we should lug in with it a large slice of foreign or

dead grammar; and there is, on the other hand, a very good reason why every noun coming into the English should be naturalized and made to conform to the rules of the English Grammar. For if we do not, the English Grammar, instead of growing simpler as time advances will grow more and more complex, until finally only *scholars* will know what changes a noun undergoes in taking a plural form. The fact is, all change in any of our sciences must be to generalize; to make simple the complex, a truth just as important in language as in mathematics. And the truth is, we are no longer required to write *beaux* as formerly—and as the French do still—but *beaus* will do. *Bureau* does not take the French mode of plural at all, and yet it is French. *Corral* comes to us from the Spanish, yet we pluralize it as *corrals*, and not *corrales* as the Spanish do in their own language. The pupil of to-day has not the time to stop and learn that the plural of *cactus* should be *cacti*, that the plural of *parallelopipedon* and *parallax* should be *parallelopipedonta* and *parallaxea*. No; *parallelopipedons* and *parallaxes* and *cactuses* are the plurals of these words, although *cacti* is allowed.

Even scientific language, that deals so largely in terms from the dead languages, has lately anglicized its terminology. We are now allowed to say *vertebrates* for *vertebrata*, *mammals* for *mammalia*, *ruminants* for *ruminantia*, *etc.*, *etc.* Is not this a step in the right direction? Verily, for the object of speech is not the display of declensions or of conjugations, but to convey *ideas* in the shortest and best manner possible.

Neither, then, do I see any reason why the word *eucalyptus* should be allowed to come into the English language and bring with it a dead plural that it never possessed. It is all very well to have pure Latin when you are reading Latin, but let us have pure English when we are reading English. However, if what has been said is not enough to condemn *eucalypti* as the plural of eucalyptus I will give another reason. Eucalyptus is not a Latin word; and never was. It is a modern compound from two Greek words, so that it has no right to a Latin plural whatever, and whenever we say *eucalypti* we are using what was once familiarily called "dog-Latin," and that of the worst kind. We might as well say *walri* for walruses—the mistake would be no worse.

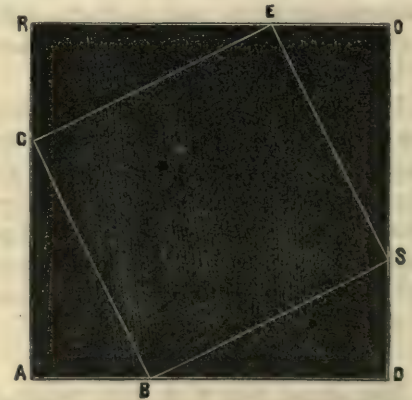
In the interest, therefore, of pure English let us attempt to naturalize all words coming from foreign sources, to the end that the young may require less time to study grammatical rules and exceptions, and thus have more time to learn something else. Very truly yours,

CH. T. MEREDITH.

San Buenaventura, May 28th 1878.

Pythagorean Problem.

A reply to L. E. T., of Oakland High School. Seen in the March number of the JOURNAL.

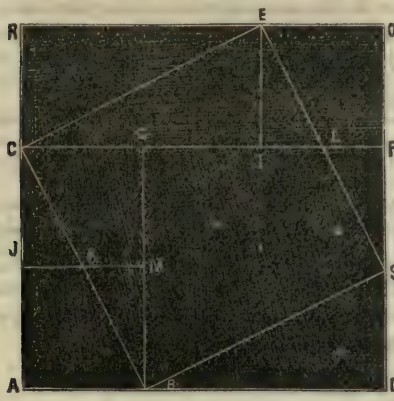


1st. To prove the four triangles CAB, BDS, SOE, and ERC equal to each other, we have CA=BD=SO=ER, AB=DS=OE=RC, and of the included angles A=D=O=R, all being right angles, which is evident from the statement of the problem, and according to Robinson's Geometry, Book ——, Theorem —, which says: "Triangles having two sides of the one equal to the two sides of the other, and the included angles equal, are equal, each to each, in all their parts."—Q. E. D.

2nd. To prove CBSE a square on BC. We have ascertained from the preceding demonstration that the lines BS, SE, EC, and CB are equal, hence the figure CBSE must, at least, be a parallelogram; it now remains to be proved that the four included angles are equal to each other, or equal to right angles. Now as every triangle can have two, and but two, right angles, and as each triangle contains one right angle, the sum of the two remaining must be one right angle. And again, according to the statement of the problem, and the first conclusion we find that the angles ACB, DBS, OSE, and REC equal to each other, and for the same reason, we find that the angles ABC, DSB, OES, and RCE equal to each other, and as there can be two, and but two, right angles on one side of a straight line, the sum of the three angles ABC,

CBS, and SBD must equal two right angles, and as, according to above proof, the angle ACB equals the angle DBS, we have the sum of the angles ABC and DBS equal to one right angle, and consequently—one right angle from two right angles leaves one right angle, and the angle CBS equal one right angle. In the same way we prove that each of the angles BSE, SEC, and ECB is equals to one right angle, hence, CBSE is a square described on BC.—Q. E. D.

3. To prove that CBSE=$\overline{AB}^2+\overline{CA}^2$ we construct the diagram here given.



We see by inspection that CBSE includes part but not all of the square described on AB and AC (or its equivalent BD). We see also that there are included the compound figure CKMGILEC. Again we see from inspection that CGIEC=BDS, ILE=LSF, and CKMGC=JABMKS, leaving the square CBSE=$\overline{AB}^2+\overline{CA}_2$. —Q. E. D.

4th. To prove $\overline{BC}^2$ equal to $\overline{AB}^2+\overline{AC}^2$, we have simply to prove that $\overline{CBSE}$ is a square described on BC, which is evident from the preceding demonstrations, and is not necessary to exemplify. Respectfully submitted,

T. S. PRICE.

King's River, June 24th, 1878.

We suggest that the expressions, "every triangle can have *two*, (and but two,) *right angles*," and "there can be *two*, (and but two,) *right angles* on one side of a straight line," are hardly proper expressions. C.

EDITOR JOURNAL: In your issue of the present month, F. A. Spaulding asks where I found the second member of the equation "$4x^2-(\ )+(14+x)=0$." (See my solution in May number.) In reply, I would say that the second member of the above equation is 0. It is found by simple transposition, as explained on page 109, Robinson's Elementary Algebra. I take the equation $x^2=\sqrt{14+x}$; transposing, *i. e.*, subtracting $\sqrt{14+x}$ from each member, I have $x^2-\sqrt{14+x}=0$, and completing the square by Robinson's second method, I have the equation "$4x^2-(\ )+(14+x)=0$," as above. This will also suffice to answer the second question.

Possibly Mr. Spaulding intended *term* instead of *member*. If so, I shall most willingly submit a thorough explanation.

Hoping the above will prove satisfactory, I am, very truly, yours, T. S. PRICE.

Fresno County, June 8th, 1878.

Will some reader of the JOURNAL please give an answer to the following?

$3+2\times4-8\div2=$?

Now the answer alone will not suffice. I want *reasons* and *authorities* for the result given. By settling this point, somebody will greatly oblige an INQUIRING HUMBOLDTER.

TEACHERS' INSTITUTES.

CONTRA COSTA COUNTY.

The Institute of this county met at Martinez on May 28th, 29th, and 30th. County Superintendent Wemple presided, Mr. A. Thurber was elected Vice-President, Mr. A. L. Pratt, Secretary, and Miss C. K. Wittenmeyer, Assistant-Secretary. Supt. Wemple, in his opening address, made the following statement:

There are 2,500 attending the schools of this county, taught by 54 teachers.

The subjects presented were "The Teaching of Language," by Mr. Dixon, also by Mr. Crowhurst and Prof. Allen. Miss Wittenmeyer, of Martinez, illustrated her system of teaching "Drawing," by a highly interesting exercise with a class of little girls. Mr. A. L. Pratt gave an exposition of his method of teaching Penmanship; Mr. Crowhurst, an original method of "Transposing the Musical Scale"; Mr. Thurber spoke of "Economy of Time and School Government"; Miss Shaw, on "School Government"; "Primary Teaching," by Miss Therston; "Reading," Mr. Crabb; Prof. Allen, in his usual able and happy manner, instructed the teachers present on methods of teaching and discipline; and after passing the usual resolutions, the Institute adjourned.

NAPA COUNTY.

The Institute in this county was very fully attended, and characterised by great interest on the part of all those in attendance. Supt. H. C. Gesford presided, Prof. Knowlton, of San Francisco, gave some of his inimitable readings, and Prof. Allen lectured on methods of teaching.

"History" was discussed by Messrs. Ackey, Fellers, Usinger, Morford, and Parker; "Reading," with illustrations by a class, by Miss Gregory; "Common Fractions," by Mr. Fellers; an essay on "Our Country," by Mr. Alley; "Primary Grammar" and "Primary Geography" by Mr. Yarnall; "Grammatical Analysis," by Mr. Morford; "Cultivation of the Mental Faculties," by Mr. Bateman; and "Education as a Fine Art," by Mr. Howell. After the passage of several resolutions, including one endorsing the JOURNAL, the Institute adjourned.

PLACER COUNTY.

This Institute was withont the services of a regular lecturer, but had, apparently, a very interesting session without. With a few exceptions, all the teachers in the county attended. The principal subjects discussed were,—"School Morals," by Prof. Ingraham; "Teaching," by W. W. Holder; "Geography," by D. H. Harton and Mr. Darwin; "Discipline," by Prof. Lowell; "Physiology," by Mr. Richmond; "Phonetics," by Prof. Rogers; "Reading," with a class to illustrate, by Miss Bennison; and "Elementary Arithmetic," with a class to illustrate, by Miss Belle May.

Mrs. Jeanne C. Carr was present during a part of the Institute, and spoke on "Natural History" and "Kindergartens." After passing the usual resolutions, the Institute adjourned.

SISKIYOU COUNTY.

This Institute was convened by Supt. H. A. Morse, at Yreka, June 3d, and was in session four days. There are many able teachers in this county, and the sessions of the Institute were, consequently, very interesting. Prof. Knowlton, of the San Francisco Boys' High School, lectured on various topics, and gave considerable instruction in methods of teaching.

C. R. Hagar read an essay on "Growth"; Mr. Sharp, on "Teaching"; John Kennedy, on "Traces of Extinct Nations"; Wm. Duenkel, "Mental Arithmetic." The music and select readings at this Institute were excellent. Mr. Raynes read "Fearless," Miss Hattie J. Hager "Character," and the songs by Mrs. De Nure, Mr. Raynes, Mr. Schofield, Miss Mollie Cleland were much enjoyed.

Among the resolutions passed was the following:

Resolved, That this Institute endorse THE PACIFIC SCHOOL AND HOME JOURNAL as an able educational paper, and recommend it to the attention of the teachers and trustees throughout the county.

Another set of resolutions adopted

IN MEMORIAM.

WHEREAS, Our fellow-laborer, J. W. Gemmel, has been removed by death from our midst since the last meeting of our County Institute,

Resolved, That in his death we mourn the loss of an efficient and earnest teacher; and one who by his ability, integrity, and zeal gave promise of great future usefulness.

Resolved, That we extend our profound sympathy to his bereaved relatives and friends, feeling that this affliction of theirs is in a great measure shared by us all.

Resolved, That a copy of these resolutions be sent to the relatives of our deceased brother, and to each of the following journals for publication: the Yreka *Union*, the Yreka *Journal*, and THE PACIFIC SCHOOL AND HOME JOURNAL.

Supt. Morse made a pleasant little parting address, and the Institute then adjourned.

SAN LUIS OBISPO COUNTY.

This Institute held its sessions from June 17th to June 21st. There was a full attendance of the teachers of the county. Supt. Darke opened with an able address on the educational status of his section of the State. Essays were read on "Reading," by Mr. Browne; "Two Classes of Teachers," by Mr. McKnight; "Moral Instruction," by Mr. Evans; "Chronicles," by Mrs. Stanton; "Physiology," by C. M. Lovett; "The School Law," by A. F. Parsons; "Arithmetic," by Mr. Deppeller; and lectures on "Rock and Mine Building," "Evolution," and "Insects Injurious to Vegetation," by Prof. Norton, of the Normal School.

Among the resolutions was one warmly endorsing the JOURNAL.

Supt. Darke of this county has been doing some very active work among his schools. He is making frequent visits, and is earnestly at work in every way to make the schools of this county second to none in the State.

From all indications, we believe his labors are thoroughly appreciated.

MENDOCINO COUNTY.

In this Institute the teachers of the county took active part, being something more than listeners. It was convened on June 11th, and

continued in session four days. Supt. Ruddock made the opening address, and also spoke on "Geography," and methods of teaching generally; Prof. Allen, also, was present, and discoursed in his usual able and apposite manner. A few of the most prominent addresses made were—"Botany," by Miss E. N. Fowler; "Drawing," Miss E. Duncan; "Institutes," by B. F. Higgins; and "Physiology," by Mrs. Lizzie Kelton.

These are but a small fraction of the very interesting and able papers which were read. In fact, this Institute is specially remarkable for two things: the large number of essays and addresses delivered by the members, and the very active and prominent part taken by the female teachers.

MONTEREY COUNTY.

This Institute was held at Salinas City, and was fortunate in the presence of considerable outside talent. Dr. Carr, Mrs. Carr, Prof. Allen, and Charles H. Shinn were all present, and delivered addresses. Mr. Shinn read an original poem, which will appear in an early number of the JOURNAL. Some of the noticeable essays read were "Literature and Reading," by H. E. Stafford; "Difficulties in the School-room," by Mr. Edwards; "Mental Arithmetic," with a class to illustrate, by Miss Tyus; and "Composition," by Prof. Prior.

The usual resolutions were passed, and the Institute adjourned.

LAKE COUNTY.

This Institute was presided over by Ex-Supt. Wallace (owing to the illness of Supt. Shirley).

The various subjects of the State Course of Study were discussed, and methods of teaching explained by Messrs, De Pencier, Woods, Hughes, Morford, Johnson, Mrs. M. L. Bryant, W. H. B. Cole, Mrs. M. C. Wilber, T. P. Primm, and Mrs. E. Townsend. Essays were read, "What we want and how to get it," by Miss Pendergast; "Moral Training," by Rev. L. Wallace; and "Schools and School-houses," by Miss E. M. Voris.

After passing a number of resolutions, the Institute adjourned.

SHASTA COUNTY.

EDITOR JOURNAL: Herewith find, in substance, the proceedings of the Shasta County Teachers' Institute, which convened at Shasta, May 29th, 30th, and 31st.

The Institute was called to order at 9:30 A.M., May 29th, by County Superintendent Mrs. D. M. Coleman. The following officers were then elected: Vice-Presidents, N. P. Howe, Francis Carr; Secretary, J. M. Gleaves; Assistant-Secretary, Miss Maggie A. King.

The following committees were, on motion, appointed by the chair: Introduction. Gertrude Cadwell, James P. Eaton, Annie Williams; Resolutions, Francis Carr, Miss E. G. Welsh, N. P. Howe, Mrs. Belle Cromwell, B. F. Roberts; Programme, B. F. Roberts, Mamie Bidwell, Chas. H. Shinn; Music, J. M. Gleaves, Miss L. Heffelfinger, Miss Etta Maguire.

At his own request, F. Carr was relieved from serving on the Committee on Resolutions, and Jas. P. Eaton's name was substituted therefor.

The Committee on Programme then retired, and during the interim twenty-five teachers enrolled as members of the Institute.

Mrs. Coleman read, as her opening address, an able paper on "Reading and School Discipline"; and immediately thereafter the Committee on Programme submitted the following, which was adopted and, with few exceptions, followed.

WEDNESDAY AFTERNOON.

Music, - - - by Committee
Reading, - - - Francis Carr
Institute Poem, Chas. H. Shinn, of Alameda Co.

RECESS.

Language, - - B. F. Roberts
Geography, - - Miss E. G. Welsh

THURSDAY MORNING.

Mathematics, - - - N. P. Howe
School Discipline, - - A. McKillop (absent)

RECESS.

School Law, - - Francis Carr
Morals, - - J. M. Gleaves

AFTERNOON.

Spelling, - - Mrs. D. M. Coleman
Methods of Teaching, - B. F. Roberts

EVENING.

Lecture on "Successful Teaching," C. H. Shinn

FRIDAY MORNING.

The Natural Sciences, - - Chas. H. Shinn
The Teacher's Relation to Society, N. P. Howe

AFTERNOON.

General Discussion.

We, having no outside talent, except Chas. H. Shinn, of Alameda County, utilized our home talent, and turned the Institute into an old-fashioned "Mutual Admiration Society," and, on the whole, had a very successful and enjoyable meeting.

The Institute, at the close of the session, adopted the following resolutions:

Resolved, That this Institute elect three teachers of this county to represent the county at the State Teachers' Association, to be held at Sacramento on the 1st, 2nd, and 3rd days of July, 1878.

In accordance with the above resolution, Mrs. D. M. Coleman, J. M. Gleaves, and B. F. Roberts were duly elected representatives.

Resolved, That we recommend THE PACIFIC SCHOOL AND HOME JOURNAL to the favorable attention of the teachers of Shasta County, and to Boards of School Trustees as suitable for school libraries.

Resolved, That our thanks are due and are hereby tendered to Mr. Chas. H. Shinn for his able work in this Institute. and his lecture on Thursday evening.

Resolved, That in the opinion of this Institute, in voting, at the State Teachers' Association, on all educational questions where a division of the house is demanded, the vote should be taken by counties; and each county should be allowed a number of votes in proportion to the number of schools in such county.

Resolved, That our County School Superintendent is hereby authorized and requested, on calling the next Teachers' Institute, to assign subjects to the different teachers of the county; and to notify them that each one will be expected to take an active part in the work of the Institute.

Resolved, That the hearty thanks of this Institute are due to our efficient County Superintendent, Mrs. D. M. Coleman, for her uniform courtesy during this Institute.

JAMES M. GLEAVES.

Educational Intelligence

FROM

STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

The school census of 1878 in this city makes some extraordinary statements. The total number of children less than seventeen years of age is about 80,000, the same number as last year. While the number of children less than five years has *decreased* 2500, the number between five and 17 has *increased* nearly as much.

The Board have adopted nearly the same schedule of salaries for 78–79 as for the past year, merely raising the principals of second-class grammar schools to $2,400. This action is specially wise and liberal, in view of the fact that the Board of Supervisors cut down the allowance for the schools just $100,000, or about 10 per cent. This action of the Supervisors means that whenever extravagance and corruption have become so flagrant that the press and people demand reform, then a good show can always be cheaply made by economizing, beginning always (and ending too) by reducing the "enormous salaries" of the teachers. The Board of Education are entitled to great credit, and to the thanks not only of the teachers, but of the community for refusing to cripple the efficiency of the schools by any such reduction of salaries, as was apparently necessitated by the action of the Supervisors. They propose to economize by cutting off every useless expense, but no further.

The position of one male and four female teachers has been "declared vacant" during this month of June. Cause—incompetency. We hope this "weeding out" process will continue until the *morale* of the department is improved.

There were two hundred and sixty-four applicants for certificates before the County Board of Examination on the 26th ultimo, the date of the semi-annual examination. It may safely be estimated that there are, in San Francisco alone, five hundred persons holding legal certificates, who desire to teach, and cannot get positions. Isn't this process of grinding out teachers by the wholesale a little overdone? We have already too many teachers, and "the cry is still they come." And the worst part of this whole teacher-making business, is the youth and ignorance of even those who are successful in gaining certificates. We say ignorance, because of the theory of teaching, of childhood and children, of mental philosophy, they have not the slightest idea.

The annual examination of the first grades took place at the close of the last school year. There were nearly seven hundred pupils examined, and about four hundred admitted to the two high schools. The examination questions, this year, have been much more difficult than for some years past, and the progress made in our schools has therefore been quite gratifying.

T. B. White, formerly Principal of the Washington School in Alameda County, an excellent and successful teacher, is teaching one of the ungraded classes in this city. From a visit paid him in June, we believe he is doing very good work.

Two school-houses are now in course of erection in this city.

ALAMEDA COUNTY.

W. S. Babcock, formerly Principal of the Marysville Grammar School, has been elected Principal of the Hayward School in this county. Mr. Babcock is one of the best grammar school teachers in this State, and the Hayward school is one of the finest in point of building, equipment, and salary; so both teacher and school are fortunate.

The Oakland Board of Education elect the teachers in that department annually. This is a bad practice, and sometimes leads to just such extraordinary proceedings as occurred at their election last month. A lady, with a high grade certificate, and presumably an excellent teacher, for she had been endorsed by her Principal, the Superintendent, and five members of the Board of Education (a majority) was unceremoniously "dropped." And what makes this action so remarkable, is that the Board had promoted the lady but a year before, and had given her a written endorsement signed by a majority of the members.

W. A. Yates, an able teacher, who has been highly successful as Principal of the Centreville school for five years, still continues in this position.

Two sons of Ex-Superintendent Lynch, Wm. F. and Oscar Lynch, are both doing good work as earnest and energetic teachers.

Supt. Gilson has not abated in his zeal for the improvement of the schools of this county. He has visited every school, and with him a visit has meant thorough inspection, criticism, and suggestion for improvement.

O. S. Ingham, A. M., late of Healdsburg, is to be associated with Prof. Klintworth, in the work of instruction and management of the Alameda Cosmopolitan School, the second term of which will commence July 8th, 1878. The establishment of this school, a short time since, was in compliance with a demand for a more practical proficiency in the study of the French and German languages.

HUMBOLDT COUNTY.

All the schools of Arcata held a picnic at the mouth of Mad River, June 5th. There was a very large attendance. One of the sports was perch fishing—a specialty here.

Prof. Volney Rattan, botanist, and teacher in the Girls' High School in San Francisco, is collecting in Humboldt County. He says he has already discovered several undescribed species, interesting to botanists.

On invitation of Supt. J. B. Casterlin, we attended the Institute of this county, held during the third week in June, in Eureka, the county seat.

After a rather boisterous sea voyage of thirty hours we arrived at our destination, and found the Teachers' Institute already in session and organized for work. There were sixty-four teachers in attendance, and the greatest interest was manifested in all the Institute work.

The lectures and instruction were given by Prof. Allen of the Normal School, and by the Editor of the JOURNAL. Reading, Spelling, Composition, and Arithmetic were among the subjects spoken on. Prof. Allen delivered two evening lectures, one on "Industrial Education," the other on "Reading," and also an exceedingly interesting lecture during the day on "School-keeping."

We found the schools of Humboldt County in excellent condition, Supt. Casterlin is spending much time and a great amount of energy to make them still better. He fully understands the wants of our people and of the school system, and he is earnest in his determination to make the schools of his county second to none on this coast.

Eureka is a pleasant little city of about five thousand inhabitants, comprising a large proportion of cultivated and intelligent people. The public schools are well supported, and are under the very efficient management of Mr. J. B. Brown, who has been their Principal for fully ten years. Mr. Brown has an able corps of assistants. His head assistant, Mrs. Bonner, a lady of rare intelligence and ability, is an acquisition to the professional ranks. In fact, Eureka and Humboldt County are fortunate in possessing a score or more of as able teachers as can be found anywhere in California.

Salaries are moderately high, and school accommodations are quite good, though Supt. Casterlin informed us that there are still four *log school-houses* in the county, and at least "six others worse than log houses."

The Institute exercises were well attended by citizens of Eureka, thus indicating their deep interest in our public schools. An address on education was delivered by Hon. H. D. Chamberlin, and remarks were made by Hon. J. G. Swinnerton and others.

At the close of the Institute, Supt. Casterlin

made a brief address, thanking the teachers present for their regular attendance and for their hearty co-operation in making the Institute a success.

Taken altogether, this is one of the pleasantest Institutes we have ever attended in California.

A large addition was made to the subscription lists of the JOURNAL, nearly every teacher in Humboldt, not already down, becoming a subscriber. There was but one resolution passed by the Institute, as follows: "Resolved, That this Institute heartily endorse the PACIFIC SCHOOL AND HOME JOURNAL, and recommend it to the support of teachers and school officers on this coast."

Institute Notes.

A discussion on "Industrial Education" was opened by Mr. J. B. Brown, and participated in by Messrs. Fablinger, Matlick, Eddy, and Lyser. It aroused considerable interest.

The wife of Mr. Fablinger, an earnest and successful teacher in this county, and herself formerly a teacher here, is a daughter of John Brown—glorious "old John Brown."

One cause of the success of the Institute was the judicious arrangements made by the Programme Committee, consisting of Messrs. Matlick, Fablinger, and Inskip, Mrs. Bonner and Miss Elkins.

FRESNO COUNTY.

Early in June we made a trip to Fresno. Our object was twofold; to visit the schools and teachers of that active and growing county, and to make a tour of investigation over the vast plains of the San Joaquin.

The first week of June beheld us a weary pedagogue; it was with keen enjoyment, therefore, that we began our rapid journey southward. A ride of nine hours, which appeared too brief by far, over mountain and meadow, through smiling fields of grain, and by brown, bare plains where blade of grass had never been, brought us shortly after midnight to Fresno City.

Here, after a night's rest, we had a pleasant visit with County Superintendent Bramlet, who has done much to improve the schools of this section of the State.

What will undoubtedly be one of the first school-houses in southern California, is to be erected in Fresno, immediately. We saw the plans just adopted by the trustees for a building of six class-rooms and an assembly hall, the whole to cost $10,000. The Legislature authorized the expenditure of $15,000 for this district, and in addition to the cost of the building, $2000 will probably be expended for furniture, etc.

There are now fifty school districts in this county, an increase of eight during the past year. Nearly sixty teachers are employed.

The principal of the Fresno school for the coming term will probably be Prof. W. A. Sanders, an able and experienced teacher.

Not precisely in the line of our educational duties, but very pleasant nevertheless, was a visit we paid to the lands of the Washington Irrigated Colony, a few miles from Fresno. This visit was so especially interesting, because we had some opportunity to see what differences have been created by a few years of irrigation and cultivation, in a county formally believed to be fit only for sheep-grazing. Five years ago the vast plains around Fresno were one immense sheep-walk, green for six weeks in midwinter, but as dry and barren as the Sahara for the remainder of the year. With a soil naturally fertile, in fact, consisting of the richest alluvial deposits, with a semi-tropical climate, nothing was produced, because that one great essential of vegetable growth, water was lacking. But irrigation has made a vast change. Wherever the canals of the Irrigation Company have brought water (from King's River about thirty miles distant) there vegetation has sprung up in marvelous profusion, and made the desert literally "to blossom like the rose."

On the Central Colony, adjoining the Washington, and established about three years ago under the superintendence of Bernhard Marks, formerly a prominent teacher in San Francisco, we found many varieties of semi-tropical fruits growing to perfection, alfalfa and other grasses growing with the utmost luxuriance, and the colony looking like a veritable oasis in the desert.

Under the escort of Mr. Covell we visited the Washington Colony. Here we found ditches and canals in course of construction, so that at an early day, water will pour its life-giving power on every part of thousands of acres.

We left the county pleased with our visit, impressed not only with the prospect of its future educational progress, but the educating power of good, cold water.

PLACER COUNTY.

Miss Kate Watkins has taken charge of the Spring Garden school, *vice* Miss Nellie Humphries resigned.

Miss Kate McElwee has opened school in the

new school district—Butcher Ranch. She is said to be a very efficient teacher.

Two Art Schools are trying to flourish in Auburn.

Miss Pitcher is Assistant under Mr. Lowell at Auburn; was principal formerly of Michigan Bluffs school. She is an efficient teacher, and commands the salary of principal.

Miss Addie Marsh is assistant in the Dutch Flat school. She is a graduate of the State Normal School of Michigan, and is said to be one of the most efficient female teachers in Placer County. She is an enthusiastic teacher of Natural History, and is taxidermist enough to set up her own specimens. She communicates her spirit to her pupils, and leads them on to draw from nature, so that her room is ornamented with the skill of herself and pupils.

W. W. Holder, formerly of San Francisco, is now teaching at Colfax. He has a graded school which he has had two years. He is popular, and doing well.

T. S. Myrick is at Michigan Bluffs—has a school of about fifty pupils, with a class well up in arithmetic and algebra. He was at Ophir one year, and Principal of the Dutch Flat school two years.

Prof. D. G. Ingraham has been at Dutch Flat for the last two years. He has a graded school, and has been doing well, and is well liked. His health, however, has failed, and he has been obliged to resign. They have a good two-story building which cost about $9000—one of the best out of the larger cities. The elevation is 3400 feet above the sea level, and the air not favorable to weak lungs.

Miss Bennison, formerly of Auburn, Dutch Flat, and Damascus, and considered a first-class primary teacher, has just been appointed to a school in Oakland, Alameda County.

SONOMA COUNTY.

There will be an apportionment of the school fund accruing from poll taxes and delinquent land sales, about the first of June.

The meetings of the County School Board will hereafter be semi-annual—on the last Wednesdays of June and November.

Judge G. A. Johnson delivered the address before the first graduating class of the Santa Rosa High School, on the 7th of June. The class numbered ten members, composed of excellent material. "It was a novel feature in the history of Santa Rosa, and an interesting occasion that gave the opportunity of judging what public education can do for us."

Supt. Davis is doing faithful and efficient work in this county. He has the supervision of 101 school districts, in which are engaged 170 teachers. We believe this county is third in the State in school population.

Prof. C. E. Hutton, who has conducted the Petaluma High School very ably and acceptably for a number of years, has been re-elected to that position. Prof. Hutton is one of the ablest teachers in this part of the State.

SOLANO COUNTY.

C. W. Childs, for eight years past Superintendent of this county, an able teacher, and Principal of the Suisun Schools, has been elected an assistant teacher of the State Normal School, at a salary of $2,000 a year. Mr. Childs was a member of the class of '66 of that school, and graduated with high honors. He is one of the most progressive teachers of the State, and is an acquisition to the Normal.

Mr. A. W. Sutphen, for three years past the very efficient Principal of the Benecia schools, has been elected to succeed Mr. Childs as Principal of the Suisun schools. This is an excellent appointment.

Mr. Horace Philbrook, a teacher from one of the Eastern cities, has been elected to the Principalship of the Vallejo Grammar School. He took with him from San Francisco one of the best and most genial of the teachers of that city, Miss Florence Randall, who now is Mrs. Philbrook. Mr. Philbrook comes to this State accredited as a good teacher; this demonstrates his excellent judgment as a man.

BUTTE COUNTY.

The school in Dayton closed on June 15th. The teacher, Mr. Humphries, is described by a correspondent as a "teacher who knew his business and attended to it, which could not be said of two of the previous ones."

"A. C. West, late principal of the Biggs public school, has pulled up stakes and migrated to Bodie, Mono County; no doubt looking for a new location. We wish him success." COR.

Miss Ida Campbell, of Cherokee has been one of the teachers at Quincy the past term, and as a token of the love and esteem in which she was held, the pupils tendered the little lady a farewell party. All the beauty and chivalry of the

Plumas capital were present, and enjoyed themselves greatly.

SANTA CRUZ COUNTY.

The first high-school class, consisting of four members, graduated at the Santa Cruz High School in June. The essays were said to have been exceptionally good, and the event a notable one for Santa Cruz. The exercises were held in the Opera House, and were highly appreciated by the public.

Miss Hattie Barham has closed a successful term with pleasant exercises in the public school at Watsonville.

Miss Ettie Dorn, of Green Valley, took her diploma at the State Normal School, and a first grade State certificate based on her diploma at the close of the last term.

COLUSA COUNTY.

There is to be a new school building in Fairview.

They are after the "right man" for school trustee in Williams district, and mean business.

"Mr. Ryder has closed his school. The exercises were pronounced splendid, and did justice to the occasion. Not a school day was missed in his eight months' teaching; even on stormy days there was good attendance. We are sorry to lose him, and only hope to get as faithful a one next year."

A new district, called the Vernon school district, has been organized.

They are working for a new school building in Dry Slough district.

LOS ANGELES COUNTY.

The schools here are enjoying a two months' vacation.

The boys of the Grammar School have organized a brass band, and are making good progress in instrumental music under Prof. Garrier.

County Superintendent McDonald has made an apportionment of fifty cents per scholar to all school districts which have more than fifty census children.

A class of nine pupils—three boys and six girls—graduated from the high school at the close of the last term.

SAN LUIS OBISPO COUNTY.

"Miss Furguson of Harmony district has a well-classified and well-disciplined school. She is doing as well as could be expected in an unfinished house, with poor desks and villainous blackboards."

San Luis Obispo County has thirty-eight school districts.

Superintendent Darke is strongly opposed to Teachers' Institutes, and is making vigorous efforts to organize the teachers to work to abolish them. So far he is unsuccessful, and has been voted down every time.

SIERRA COUNTY.

The public school at Downieville closed on the 15th June—short of the time, owing to the want of money.

Weinstock & Lubin, of the Mechanics' Store in Sacramento, donated the prizes made to the public school in Downieville at its recent closing exercises.

SANTA BARBARA COUNTY.

They have a microscope on exhibition at the "Literary" in Santa Barbara that magnifies 25,000,000 times. So says the *Advertiser*.

H. Williams is said to have the banner school in Santa Barbara.

TUOLUMNE COUNTY.

The public school of Sonora has a vacation until September. Who would not be a school boy up in the mountains, to go fishing for three months?

Examination Questions for Pupils.

[Prepared by O. E. SWAIN, Principal of the Chico Grammar School, and used in the schools of that city.]

WORD ANALYSIS.

1. Name and define ten Latin roots. 2. Give *one* word from each of the roots given in the above. 3. Name and define ten Greek roots. 4. Give *two* words from each of the roots given in the above. 5. Give the difference between *tame* and *gentle*, *invent* and *discover*, *genuine* and *authentic*, *felicitate* and *congratulate*, *a picture* and *a painting*. 6. Give a synonym of *ability*, *silence*, *truth*, *modest*, *education*, *worth*, *belief*, *force*, *new*, *infirm*. 7. Give an adjective from *eulogy*, *dyspepsia*, *panoply*, *autocrat*, *apathy*, *telescope*, *thermometer*, *pedagogue*, *analysis*, *diameter*. 8. Name and define ten Latin prefixes, and give a word to illustrate each. 9. Name and define ten Latin suffixes, and give a word to illustrate each. 10. Give the derivation and the

definition of *capricious*, *salary*, *lunatic*, *hippopotamus*, *tariff*.

PHILOSOPHY.

1. Whence the term "electricity"? How many kinds? Name them? 2. What is *specific gravity?* When will a body float? When will it sink? 3. Give law about fluids of *different* specific gravity. 4. Prove that liquids have weight. 5. Define *malleable* and give one example. 6. Mention a force that may overcome gravity. 7. What is *capillary attraction?*. 8. Why does a bottle filled with water sink? 9. What is the cause of lightning? 10. Give the law of elasticity of air. 11. What are the chief uses of the barometer? 12. Why can we, with a tube, suck up water with the mouth? 13. What are the principal parts of a common pump? 14. What is *sound?* What causes it? 15. Give the velocity of sound. 16. When is aqueous vapor condensed? What is rain? snow? dew? frost? 17. Why does it rain more in mountainous countries than it does on low lands? 18. Is snow useful? Why? 19. Name the colors of the rainbow. What is the solar spectrum? 20. How is a coke-cell prepared?

BOOK-KEEPING.

1. How often are personal accounts balanced by book-keepers? 2. For what is the Petty Cash Book used? 3. How often should the Cash Book be balanced? Why? 4. Why do business men keep a Cash Book? 5. What is book-keeping? How many methods are there? Name them. 6. What should be recorded in the Day Book? 7. What is the Ledger, and how is it used? 8. What is posting? 9. What is meant by "opening an account"? 10. How are mistakes in the Ledger to be corrected? 11. How do you balance an account? 12. How do you rule? When? What kind of ink? Why? 13. What is the advantage of the Balance Sheet? 14. How often do business men balance their accounts? 15. May an account be closed at any time? How? 16. What is *tare?* What is a *policy?* 17. What is a *note?* What is a *bill?* 18. Give the abbreviation for Account, Barrel, Cash Book, Draft, Exchange, Paid, Received, Last Month, At, Per cent. 19. Define the following abbreviations: #, viz., R. R., P. & L., Oct., lbs., d's., inst., I. B. 21. Of what use is the study of Book-keeping.

GEOGRAPHY.

Bound California, name its highest peak, largest river, city, and bay. 2. Give the length of California, its width, its principal productions. 3. What are *isothermal lines?* Are they parallel? Why? 4. What is the difference between a continental and an oceanic river? Illustrate. 5. How does vegetation purify the atmosphere? 6. What is *vapor?* Name its uses. 7. How is snow produced? What is its use? 8. What is a "river basin"? A "river bed"? A "river system"? A "delta"? 9. How is the purity of the ocean preserved? 10. Describe the inhabitants of the temperate zone, 11. Mention the principal salt lakes. The largest lake in the world. 12. What is the velocity of the Gulf Stream? Its influence upon Europe? 13. What kind of food is required in the Hot Zone? The Temperate? The Frigid? 14. What are *clouds?* How far above the earth's surface do they rise? 15. In what parts of the earth is *climate* the most uniform? 16. Which possesses the warmer climate—France or New Foundland? Why? 17. What is *atmosphere?* Its weight? Its density? 18. What can you say of the seal? Of the camel? Of the Reindeer? 19. Name and describe the four classes of animals. Give an example of each. 20. Which were the celebrated nations of Europe?

PHYSIOLOGY.

1. State locality of *humerus*, *ulna*, *scapula*, and hyoid bone. 2. Describe the hip joint. Where is the liver, and what are its functions? Name the largest gland in the body. 3. Name and locate the salivary glands. Name the digestive fluids. 4. What is the normal rate of pulsation in the adult? How does it vary in age, in infancy, in fever? 5. Give the office of the lymphatics, of the lacteals, of the perspiratory glands. 6. How many ribs? How many bones in the spinal column? Of what are bones composed? What envelops them? 7. Where does the bile mix with the food? State the use of the bile. Name functions of the skin. 8. Give five rules for preserving the health, embracing *air*, *diet*, *clothing*, *exercise*, *cleanliness*. 9. Name the five senses, and give the anatomy of the leading organ of each. 10. Of what does the apparatus of vision consist? Name the coats and humors of the eye. Why should sudden transitions of light be avoided?

HISTORY.

1. Give date of birth, of death, and name of the first President. Name two important facts that occurred during his administration. 2. Citizen Genet: who was he, and what of him?

When and where did the Whisky Rebellion take place? Give the result. 3. What were the Alien and Sedition laws? When and from what nation was Louisiana purchased? Name the price. 4. Write seven lines concerning the acts and character of Aaron Burr. 5. What is meant by "Orders in Council"? "Milan Decree"? "Embargo"? 6. Write five lines on the services of Commodore Perry: the same of Andrew Jackson. What was the "Monroe Doctrine"? 7. State the cause of "Nullification." In what State? Who was the leader? The result? 8. How many Presidents died in office? Who took the vacant chair? When and by whom was the boundary line of Maine settled? 9. What Presidents refused to serve another term? What two Presidents died on the same day? When did Webster and Clay die? 10. Name three American Generals engaged in the Mexican War. Who commanded the Mexican forces? Name five Union and five Confederate Generals engaged in the War of Secession.

ARITHMETIC.

1. How long will it take a sum of money to double itself at 15 per cent.? 2. What number increased by 15 per cent. of itself is equal to 644? 3. If I buy 60 shares of C. P. R. R. stock at 8 per cent. discount and then sell it at 9 per cent premium, what do I gain? 4. What must I pay for 5 per cent. bonds that my income may yield me 8 per cent.? 5. What is a dollar greenback worth when gold is at 108? 6. If I buy an article at $4.25 and sell it at $4.93, what per cent. do I gain? 7. Find the insurance on $80,000 at 2½ per cent. 8. What shall I receive for collecting $5,727 if my commission be 2 per cent.? 9. What is the present worth of $756, payable in 1 year 4 months at 6 per cent.? What the discount? 10. What is the amount of $1000 for 3 years at 7 per cent. compound interest? 11. What is the amount of $500 for 3 years, 7 months, 18 days at 3 per cent.? 12. What is the bank discount, and what the proceeds of a note of $1487 due in 30 days, at 6 per cent.? 13. What is the duty, at 20 per cent., on 15 gold watches, invoiced at $125 each? 14. Find the equated time on the following bills: June 1st, $400; June 9th, $200; June 14th, $300; June 19th, $100; June 21st, $100; and June 29th, $200. 15. If 3 men, in 16 days of 12 hours each, build a wall 30 feet long, 8 feet high, and 3 feet thick, how many men, in 24 days of 9 hours each, will build a wall 45 feet long, 9 feet high, and 6 feet thick? 16. Four men hire a carriage for $15.20. A rides 16 miles, B rides 14 miles, C rides 22 miles, and D rides 24 miles. What ought each to pay? 17. Perform the operations indicated: $(\frac{3}{4})^4$; $(.005)^4$; $\sqrt{\frac{64}{81}}$; $\sqrt[3]{\frac{27}{125}}$. 18. A druggist mixes alchohol worth 60, 80, 84, 94, 98 and 100 cents per gallon so as to form a compound worth 90 cents per gallon. How many gallons of each must he use? 19. Two ships sail from the same port; one goes due north 80 miles and the other due east 60 miles; how far apart are they? 20. What is the cube root of 44361864?

GRAMMAR.

1. How can you distinguish a participial noun from a participle? A participle from a participial adjective? 2. In how many and what ways can a verb be conjugated? What is conjugation? Give a synopsis of the verb *learn*, conjugated affirmatively in the third person, singular number. 3. Give the principal parts of the verbs *force*, *crop*, *obey*, *move*, *please*. Give the participles derived from each of them. 4. Tell all about adjectives. 5. Name and define the modifications of nouns. 6. In what five ways may the subject or object of a sentence be modified? The predicate in what two ways? 7. Define *adjunct*, *phrase*; also *adjective*, *adverbial*, *explanatory*, *participial*, *infinitive*, *prepositional*, and *substantive* phrases. 8. Write a simple declarative sentence, a complex sentence, a compound sentence, a sentence containing but two words. 9. Tell all about pronouns. 10. Tell all about letters, syllables and words. Define spelling, and tell how the art may be acquired.

ORTHOGRAPHY.

Spell correctly the following words:

Amphibious, diphtheria, pneumonia, sarcastic, eclectic, dyspepsia, cosmetic, argentiferous, pendulum, eschscholtzia, peculiarly, spontaneous, frustrated, disquietude, emaciated, systematically, sacrilege, execration, contagious, conveyance, degenerate, expectorate, prevaricate, mathematician, algebraist, antiquated, sanguinary, initiate, scandalize, inexorable, radiance, Lamellibranchiate, application, ridiculous, advantageous, mosquito, vermicelli, laudanum, retrieve, barbarous, accession, practicable, sequestered, congregated, scandalous, foliage, allopathy, domicile, anonymous, debilitated.

ALGEBRA.

1. Given $\frac{x+5}{2}+\frac{5(x+5)}{6}=3(x+5)-20$ to find the value of x.

2. Find two numbers, such that the sum of half the first and one-third of the second is 9; and the sum of one-fourth of the first and one-fifth of the second is 5.

3. Given $\left.\begin{matrix}\frac{1}{2}x+\frac{1}{3}y+\frac{1}{4}z=22\\ \frac{1}{4}x+y+\frac{1}{2}z=33\\ x+\frac{1}{2}y-\frac{1}{3}z=19\end{matrix}\right\}$ to find to values of x, y and z.

4. Perform the indicated operations:—$(3m^m b^c)^5$; $\left(-\frac{2y}{5x}\right)^4$; $(5x^2z)^5$.

5. Expand $(x-y)^7$. Expand $(5a+2c)^6$.

6. Extract the square root of $x^2+2xy+y^2+6xz+6yz+9z^2$. The cube root of $a^3-6a^2x+12ax^2-8x^3$.

7. Add $\sqrt{80a^2b^2}$ and $\sqrt{125a^8b^6}$. Add $\sqrt[3]{8a^2}$ and $\sqrt[3]{125a^2}$.

8. From $\sqrt{162x^4y}$ take $4\sqrt{8x^4y}$. From $\sqrt[3]{128a^9bc}$ take $4a\sqrt[3]{16bc}$.

9. Multiply $3\sqrt{2}$ by $\sqrt{150}$. Divide $8\sqrt{72}$ by $2\sqrt{6}$. Multiply $x^{\frac{1}{3}}$ by $x^{\frac{1}{4}}$. Reduce $a^{\frac{1}{4}}$, $x^{\frac{1}{3}}$ and $c^{\frac{1}{4}}$ to a common radical index and express the result in all their forms.

10. Given $\sqrt{x}+5=9$ to find x. Given $x+\sqrt{x^2-7}=7$ to find x.

Reading conducted orally.

The questions of the semi-annual examination issued by the State Board will be published in our next number.

BOOK NOTICES.

A MANUAL OF AMERICAN IDEAS. By Caspar T. Hopkins, M.A. San Francisco: A. L. Bancroft & Co.

This book is a clear and systematic treatise on the political ideas which underlie our form of government, and the rights and duties of the American citizen. It has lately been adopted as a manual for use in first grade classes in the public schools of San Francisco, and it is also of great value as a book for the family circle.

Special attention is paid to the subjects of free speech, and free press, of education by the State and of universal suffrage. Part II is an exposition of the legal system of our country as compared with that of Europe, of treason, impeachment, and bankruptcy. The author is evidently imbued with a spirit of patriotism, and is actuated by a desire to increase among the people such knowledge of political matters as shall make good and useful citizens.

THE TEACHERS' GUIDE TO ILLUSTRATION is a very useful and valuable manual for the use of teachers. It is published by A. H. Andrews & Co., Chicago. It embraces quite a wide range, treating of object-teaching in connection with geometrical solids, globes, astronomical apparatus, the magnet, etc., etc. Part II, on the use of the globes, and Part III, on the simple elements of astronomy, are especially valuable as a guide to the teacher in his lectures to his class.

THE OUTLINES OF NATURAL PHILOSOPHY. For Young Children. By Edwin J. Houston, A.M. Philadelphia: Claxton, Remsen & Haffelfinger.

This little book of 123 pages consists of twenty-four lessons (on the question and answer plan) on matter and its properties, force, motion, heat, light, electricity, etc. We cannot say that we approve the plan on which this book is conducted. We thought that the system of question and answer had been universally abandoned as not in accordance with natural processes, nor conducive to accurate results. We doubt, consequently, if this book would be of much service in the hands of children. To teachers, however, it may be very suggestive. The definitions are short, expressed in clear, simple English, and are very well arranged. Technical terms are avoided; but definitions are given, and phenomena explained in such simple, precise terms that they can never afterwards be misunderstood.

Books Received.

The following named books have been received, and will be reviewed in the August JOURNAL:

FROM A. ROMAN & CO.

A PRIMER OF DESIGN. By Charles A. Barry, Superintendent of Drawing, Boston Schools. Boston: Lee & Shepard.

BY PROXY. A Novel. By James Payne. New York: Harper & Brothers.

MINE IS THINE. A Novel. By L. W. M. Lockhart. New York: Harper & Brothers.

FROM PAYOT, UPHAM & CO.

WRECK OF THE GROSVENOR. New York: Harper & Bros.

ESTHER PENNEFATHER. By Alice Perry. Harper & Bros.

JUSTINE'S LOVERS. Harper & Bros.

IS HE POPINJOY? By Anthony Trollope. Franklin Square Series. Harper & Bros.

REAPING THE WHIRLWIND. By Mary Cecil Hay. Harper's Half-Hour Series.

MERIVALE'S SMALLER HISTORY OF ROME. By C. Puller, A.M. Harper & Bros.

PLATONIS DIALOGI, VI. *Ex Recensione* C. F. Hermanni. Harper & Bros.

M. TULLII CICERONIS TUSCULANARUM DISPUTATIONUM AD BRUTUM. LIBRI QUINQUE. *Recognovit* Reinholdus Klotz. Harper & Bros.

FROM I. N. CHOYNSKI.

A MODERN MINISTER. Vols. I and II. New York. Harper & Bros.

FROM A. L. BANCROFT & CO.

PAULINE. By L. B. Walford. New York: Henry Holt & Co.

FROM ADAM MILLER & CO., TORONTO.

ELEMENTARY ARITHMETIC ON THE UNITARY SYSTEM. By Thomas Kirkland, M. A., and William Scott B.A.

FROM D. APPLETON & CO., NEW YORK.

APPLETON'S SCHOOL READERS. First, Second, Third and Fourth Readers. Published by D. Appleton & Co.

PRINCIPALS AND PRACTICE OF TEACHING. By Dr. James Johonnot.

FROM SOWER, POTTS, & CO., PHILADELPHIA.

THE NORMAL UNION ARITHMETIC. Parts 1, 2, and 3. By Edward Brooks, A.M., Ph. D.

THE HIGHER ARITHMETIC. By the same author.

THE PHILOSOPHY OF ARITHMETIC. By the same author.

FROM S. C. GRIGGS & CO., CHICAGO.

THE FIRST SIX BOOKS OF HOMER'S ILIAD. By James Robinsod Boise, Ph. D., LL.D.

THE JULY MONTHLIES.

Harper's for July is especially rich in illustrated articles descriptive of Virginia life and scenery. The opening article is entitled "Some Landmarks of Old Virginia," by Allen C. Redwood, (illustrated). Then follows "Hospital Life in New York," by W. H. Rideing; "Old Flemish Masters, IV, Anthony Van Dyck," by E. Mason, with four illustrations; "Owlet, A Story," by John Esten Cooke, (with two illustrations); "Old-time Militia Muster," by Porte Crayon, (with eleven illustrations); "Juggernaut," by A. H. Guernsey, (with four illustrations); "A First Week in England," by Mrs. E. C. Walton, (with nine illustrations); "Daddy Will, A Glimpse of Ancient Dixie," by Charles D. Deshler, (with one illustration). "Macleod of Dare," by William Black, is continued; "Anecdotes of Voltaire among the Swiss," by Dr. Abel Stevens; "The Return of the Native," the serial, by Thomas Hardy; "A Wife-Hunt," a story, by Charles De Kay; "Freedom of the Press Vindicated," by Benson J. Lossing; "An Adventure in a Forest; or, Dicken's Maypole Inn," by James Payn. The department's are, as usual, very interesting.

Scribner opens with Dr. Brewer's third paper on "Bird Architecture," (illustrated); "A Few Antiques" is the title of an anonymous paper on some fine specimens of decorative art; "The Police of New York," by Ernest Ingorsoll, is an interesting account of the police force of that city; "The structure of Oxford," by Ansley Wilcox, is a graphic description of that great University; Miss Trafton's serial, "His Inheritance," ends in this number. It will be followed by Mr. Boyeson's new novel, "Falconberg." The unillustrated articles are "Is it Going to Rain?" by John Burroughs; "Pomona takes the Helm at Rudder Grange," by F. R. Stockton; "Italy and the Pope," by Luigi Monti, etc., etc. The editorial and other departments are as excellent as ever.

St. Nicholas for July opens brightly and seasonably with a story of patriotic interest, by Charles H. Woodman, entitled "The Girl who Saved the General." After this comes several lively stories. There is "The Barbecue," by Sarah Winter Kellog, with a fine picture by Walter Shirlaw. Then comes "Sneeze Dodson's First Independence Day," by Mrs. M. H. W. Jaquith, and then "A Boy's Experience with Tar Marbles" on a very warm day, its three illustrations being by Jessie Curtis. There is a profusely illustrated story entitled "Too Many Birthdays"; a funny poem, "The Yankee Boys that didn't number Ten," with ten comical silhouette illustrations by Hopkins; "How the Weather is Foretold," by Mr. James H. Flint; Prof. W. K. Brooks, of John Hopkins University, discourses about various "Birds and their Families," and "The Story of Perseus," by Mary A. Robinson, gives a pleasant peep into the wonderland of ancient mythology; more installments of the two serials—"Dab Kinzer," by William O. Stoddard, and "Under the Lilacs," by Louisa M. Alcot—with striking pictures by Mary Hallock Foote and Sol Eytinge; and the poems of the issue are "Rain," by Edgar Fawcett; "Forty, less One," by James Richardson; and "Meadow Talk," by Caroline Leslie—the last two with capital illustrations. The departments, "For Very Little Folks," "Jack-in-the-Pulpit," "Letter-Box," and "Riddle-Box," are varied and attractive.

The principal articles in that American classic, the *Atlantic Monthly*, are the first installment of "The Europeans," Henry James, Jr.'s new novel; a Japanese contributor, a pathetic love-story, "Mosume Sets Yo; or Woman's Sacrifice; Col. T. W. Higginson tells about "Some War Scenes Revisited"; Mr. Moncure D. Conway gives an account of "The Romance of a Family." There is an admirable article by Mr. H. E. Scudder, on "St. George's Company." "New Books on Art" this month treats of "The Portfolio" and Lubke's "History of Art." A short article by Mr. Allan B. Magruder, "The Will of Peter the Great, and the Eastern Question," will be found peculiarly interesting at the present time. Richard Grant White's third paper on "Americanisms" is given, and Dr. H. C. Angell contributes an article on "Weak Sight." The poetry of the month includes a "Song: The Wedding Day," by E. C. Stedman; "The Old Man of the Mountain," by J. T. Trowbridge; "Kearsarge," by S. Weir Mitchell; "The Dream Fay," by Rose Terry Cooke; "Our Neighbor," by Harriet Prescott Spofford; and "Midsummer Dawn," by Harriet W. Preston. The Contributors' Club and the book reviews are of even more than usual merit and interest.

The *Popular Science Monthly* for July has the following table of contents. The articles on "Education as a Science," by Dr. Bain, and on "The Scientific Study of Human Testimony," by Dr. Beard, will be found especially valuable to the earnest and progressive teacher; "Civilization and Science," by Prof. Emil Du Bois-Reymond; "Recent Experiments on Fog-Signals," by Prof. John Tyndall, F.R.S. (illustrated); "Water-supply of Rivers," by George Chahoon; "Evolution of Ceremonial Government, VI, Forms of Address," by Herbert Spencer; "Seaside Studies," by Prof. Sanborn Tenney, (illustrated); "On the Formation of Nebulæ," William M. Davis, Esq.; "The Question of Pain in Hanging," by Roger S. Tracy, M.D.; "The Radical Fallacy of Materialism," by R. G. Eccles, Esq.; "Sketch of Prof. Du Dois-Reymond with Portrait). The editorials are as incisive and logical as only Dr. Youmans can make them; the literary notices and miscellany are of the usual interest.

Lippincott's Magazine has made so much improvement of late years that it is justly entitled to a high place in the front rank of modern magazines. The July number is as good as usual.

We have also received *Littell's Living Age*, *Appleton's Journal*, *the Christian Union*, and the *Independent*.

THE PACIFIC

SCHOOL AND HOME

JOURNAL.

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THE INFLUENCE OF PERNICIOUS HABITS OF READING.

BY PROF. O. S. INGHAM.

[Healdsburg, Sonoma County.]

"Such concentrated diet as that furnished by the experiments of the physicist, the investigations of the political economist, the analyses of the psychologist, is intolerable to them, is indigestible by them; but instead, they swallow with greediness the trivial details of table-talk, the personalities of fashionable life, the garbage of the police and divorce courts, while their reading, in addition to trashy novels, includes memoirs of mediocrities, volumes of gossiping correspondence, with an occasional history, from which they carry away a few facts about battles and the doings of conspicuous men."

The above extract from a recent work of that greatest of modern thinkers, Herbert Spencer, applies with great force and propriety to one of the greatest evils of the age—the wholesale reading by our children and youth of the cheap sensational literature that "floods the market," and which, in nine cases out of ten, if not absolutely dangerous and corrupting, is, at least, of very questionable character. To this subject should be given the thoughtful attention of all those who have at heart the welfare of the on-coming generation, and are sufficiently wise to forecast the certain, disastrous results to national character, power, and influence, unless there is, in the education of childhood and youth, that change effected for the better which is so palpably, so imperatively demanded.

Exclusive of those who are members of the learned professions, incidental to success in which much reading is usually necessary, the majority of the American people are great readers. This habit of reading, so general and, properly directed, so beneficial, is eminently characteristic of us as a people, conclusive proof of which is found in the fact that in the United States, in proportion to the population, the publication of books, magazines, and newspapers is largely in excess of the number of those published in any other country on the globe; and that, too, in compliance with a demand actually existing and constantly increasing. It is, therefore, a question of grave importance whether this demand, daily growing more imperative, is the outgrowth of a correct, healthful public sentiment. A little attention to the subject, it seems to me, must convince any person of good, unbiased judgment that the most of the current publications—whether books, magazines,

or weeklies—are influential for evil; that too many authors and publishers are quite willing to cater to, and foster a depraved literary taste, in order to "put money in their purse."

Though much has been said, and well said, on the subject of reading, its importance and what should be its character, much remains to be said, and that pointedly and earnestly. I refer especially to that phase of the subject which embraces the right-kind of reading for children and youth. The importance of this branch of the subject, no one will deny; no one will deny that there are habits of reading formed by our children and youth, prolific of the most serious evils. In view of these evils, and the close, influential relation the teacher sustains to the child, it seems to me that too little stress has been laid on the duty of teachers in this connection, and the influence they can and should exert in this direction of reform. If not to the schools, where shall we look for a remedy for this already great, but still growing evil?

Many parents, whose constant thought and ruling motive, unquestionably have for their object the welfare of their children, are singularly inconsistent in their seeming obliviousness of the importance of their children forming proper habits of reading—of reading that only which is useful and instructive, elevating and ennobling, what is morally and mentally legitimate. Such parents will exercise the most diligent, constant watch-care over their children, to prevent association with companions whose influence upon them might be debasing and corrupting, while they give little or no heed to the "company they keep" in the *Dime Novel*, the *Police Gazette*, and like publications, whose heroes are too often debauchees, gamblers, thieves, robbers, and monsters of iniquity; where virtue is discrowned, and licentiousness "decked out in gaudy trappings," innocence sneered at and crime eulogized; whence issues a deadly miasma terribly influential for evil upon the mind, heart, and soul of the confiding, unquestioning, inexperienced child or youth.

The merest tyro in hygienic knowledge knows that plenty of nutritious, well-prepared food is necessary to the health and growth of the body, to beauty and symmetry of form, strength of muscle, steadiness of nerve, fairness of complexion, buoyancy of spirit, and activity and efficiency of brain; he knows that coarse, scanty, ill-prepared food conduces to bodily weakness, deformity, uncomeliness, depression of spirit, and sluggishness and inefficiency of brain. So the merest tyro in a knowledge of the laws of mental and moral hygiene knows that plenty of healthful, carefully-prepared food is necessary to develop the wonderful, benign powers of the mind, the holy, saving affections of the heart, the pure, noble aspirations of the soul; and, as well does he know that improper, illy-prepared mental and moral food will develop the lowest, basest, fiercest passions of the heart, pervert to evil the powers of the mind, and dwarf or destroy at its birth every pure, high aspiration of the soul. Books, magazines, newspapers are the granary for the heart, mind, and soul—a vast storehouse containing the choicest, greatest mental and moral productions of the greatest, best of men and women; but (impossible to be too greatly deplored) it contains also the most vile, corrupting productions—productions stamped broad and deep with the seal of Satan! Let the child, the youth, the man, the woman, let *all* be careful in selecting from this great store-house; for by reading we secure, and by thinking we assimilate, incorporate into our mental and moral make-up the food so selected.

Nor should we, in this connection, ignore the effect for good or evil, of the reading habits of a people on national

character. Nearly two thousand years ago one of Rome's greatest writers said despairingly and reproachfully, "All is venal at Rome!" In how many, and in what particulars would this humiliating saying have to be modified in its application to our own national affairs? Not a week, scarcely a day passes, that some official corruption is not unearthed, some petty or wholesale thieving or other villainy discovered; and, one of the worst, most significant signs of the political corruption of the times, is the fact that official rascality, instead of being called "rascality, deep and damnable," is, through a morbid, servile obsequiousness to place and power, called "defalcation" or "failure to account for certain funds." Whether it be cabinet officer, Senator, Congressman, Minister Plenipotentiary, Revenue officer, Postmaster, or Bank President, *let the thief, the rascal, be branded, treated as such.*

When and how can this condition of things be improved, instead of permitted to grow worse and worse, daily and indefinitely, is a most timely and pertinent question. But, first, is it not true that the men of the next generation who will be chosen to fill official position, are the boys of to-day? Will familiarity with the pestilential yellow-covered literature that crowds our news' depots to the exclusion of standard, classic publications in literature, science, and art, contribute to a proper preparation of these boys to enter upon, and discharge faithfully, efficiently, and honestly the duties, the responsibilities incidental to high official position? Can a pure, blameless, exemplary life, public or private, owe anything to familiarity with literature whose language is sounding, artificial, highly-wrought; whose sentiment is false, seductive, corrupting; whose thought is low, debasing, dehumanizing; where the scenes described are such as could be real only in depraved, criminal society; where the domestic and social relations are falsified—conjugal affection ridiculed, filial affection ignored, friendship based on the falsest of motives; where dishonor becomes honor; vice, virtue; all that is evil, the highest good—around all which is thrown a fatal, seductive charm, too well calculated to excite the interest and sympathy, and influence with a power cumulative for evil, the credulous, unsuspecting mind and confiding heart of inexperienced youth? No! No! Such familiarity must tell upon official as well as private character, with terrible effect.

Another, and one of the most conspicuous, most deplorable of the long train of evils sure to follow the long-indulged habit of reading the trashy, sensational literary rubbish that curses the age in which we live, is the inability it begets in the victim of this habit to take interest in, or derive profit from the reading of standard works on science, art, or literature—works that are replete with the grandest, most beautiful, most elevated, most instructive, most purifying thoughts. The memory, the judgment, the power of thought become impaired; the love for the true, the good, the beautiful, becomes weakened if not destroyed; the mind craves the trifling, the unreal, the sensational, the sickly sentimental, the voluptuous, the monstrous; in short, the soul shrivels, the heart becomes false and barren, the mind becomes a lamentable wreck. When the student contracts this habit and its influence becomes controlling, I care not what may be his natural gifts, or how brilliant his record may have been before, as to becoming a scholar, a leader in the world of thought, he has signed his death-warrant with his own hand.

It is true that there is in the mind a love for the novel, the wonderful, the humorous, the sentimental, as well as for the good, the true, the beautiful, the sublime; and this love should be gratified, developed. But instead of abnormally, fatal-

ly developing and gratifying this love by resorting to objectionable literature, it can, and should, be cultivated by familarity with the works of Shakespeare, Milton, Cowper, Hood, Lamb, Irving, Hawthorne, Bryant, Longfellow, Whittier, and the thousand and one others of the great, gifted, and good, who by their lives and works have shed an immortal luster on humanity, and raised the human race, as a whole, high heaven-ward !

But, lastly, and for want of space, briefly, the remedy. This is simple and apparent —the substitution, in the place of incorrect, of correct habits of reading and thinking. In the application of this remedy lies the difficulty, and therein is required the most cautious, intelligent management. As before suggested, the teacher is, for obvious reasons, the person to commence the work of reform. It is, perhaps, superfluous to add that the work of moral instruction should, from the commencement, go hand in hand with intellectual training ; I merely mention this in passing.

It is to be presumed that previously to the time the student enters upon the reading of any standard work of prose or poetry, he has been taught what reading is —the perfect mastery of the thought contained in the language, the understanding the meaning of every word, every allusion, in short, *everything* he has read ; anything short of this thorough knowledge is, of course, imperfection ; and just in proportion to that imperfection, will be the difficulty that will attend the subsequent reading, by the student, of any standard work in any department, especially the scientific. Especially, then, should the work of preparation be thorough and complete. As auxiliary to this preparation, it seems to me that some changes could be most profitably made both in the manner of reading and in the matter read. In the lower grades, greater prominence should be given to the reading exercises, even to the exclusion, if necessary, of some other exercises of less importance—to them more time, more attention, more labor should be given.

Nor should the reading be confined to the school Readers, which soon become dry and uninteresting, but in their place should be substituted something more fresh and interesting, something better adapted to the wants of the child—such children's magazines as the *Nursery, St. Nicholas*, or *Oliver Optic's*. These should be read under the supervision of the teacher.

For the use of the pupil, when prepared to commence the careful, exhaustive reading of standard works in whatever department, a well-selected, though not necessarily a large library, is necessary. The choice of works to be read should be made under the direction of the teacher ; and, in company with him should the first, and as much as possible of the subsequent reading, be done. The teacher should, as far as possible, make the reading not only instructive, but critical. The attention of the pupil should be directed to the gems of thought, the beauties of style, words and allusions that may be unusual or obscure, and especially should *verbal criticism* receive attention. Questions many and pertinent should be asked ; and no answers admitted as satisfactory that do not give evidence of a clear, accurate conception of the subject under consideration. The reading of poetry will require the especial attention of the teacher, till the child becomes accustomed to, and appreciative of, the difference between prose and poetry, not only in language, but also in thought. In addition to the things to be noted in prose, the " mechanical effects " should be pointed out and dwelt upon.

When the pupil can read understandingly, and fully enjoy the wonderful creations of a Scott, the beauties of an Irving, the intellectual quaintness of a Carlyle, or the massive eloquence of a Webster, there is not much danger of his leaving this glori-

ous realm of thought, to descend to the damp, miasmatic fens of "yellow-covered literature"; of exchanging the golden fruit to be plucked so abundantly in this intellectual garden, for the "apples of Sodom" that thrive on the Dead Sea banks of Dime Novel literature.

KEARSARGE.

[On Sunday morning, June 19th, 1864, the noise of the cannons was heard in English churches during the fight between the Kearsarge and the Alabama.]

Sunday in Old England;
In gray churches everywhere
The calm of low responses,
The sacred hush of prayer.

Sunday in Old England;
And summer winds that went
O'er the pleasant fields of Sussex,
The garden lands of Kent,

Stole into dim church windows
And passed the oaken door,
And fluttered open prayer-books
With the cannon's awful roar.

Sunday in New England;
Upon a mountain gray
The wind-bent pines are swaying
Like giants at their play;

Across the barren lowlands,
Where men find scanty food,
The north wind brings its vigor
To homesteads plain and rude.

Ho, land of pine and granite!
Ho, hardy northland breeze!
Well have ye trained the manhood
That shook the Channel seas,

When o'er those storied waters
The iron war bolts flew,
And through Old England's churches
The summer breezes blew;

While in our other England
Stirred one gaunt rocky steep,
When rode her sons as victors,
Lords of the lonely deep.

—*S. Weir Mitchell in the Atlantic.*

BOTANY.

Elementary Work for the Dry Season.

BY VOLNEY RATTAN.

[Teacher of Natural Sciences in San Francisco Girls' High School.]

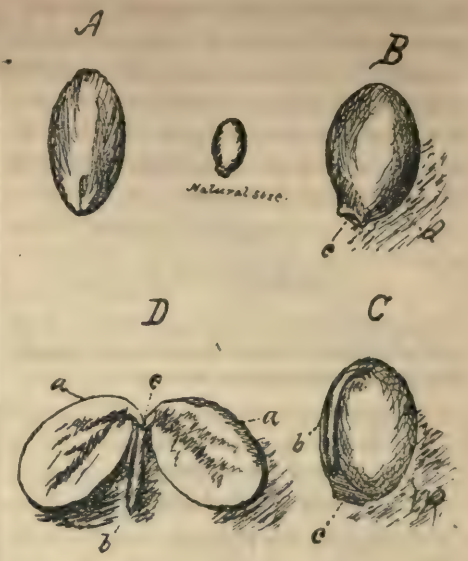
If you intend to study botany with your pupils this year, begin at once. Ask the children to gather all the seeds they can find. Large seeds, such as buckeyes, acorns, all kinds of nuts, peas, and beans are particularly desirable. A plant called big-root, or Chili Cojote, the seeds of which are frequently gathered by the boys to play some game with, is interesting on account of the curious development of the coty-ledons in the germination. It is quite too common in the grain fields, and may be known by its cucumber-like vine and prickly fruit. Lupine, bur-clover, mallows, wild oats, filaria, thistles, etc., grow near most country school-houses. Let a sharp lookout be kept for the ripening seeds. Large seeds, covered with hard or tough shells should be put into a box with moist earth as soon as collected. The work may begin as soon as enough seeds of one kind are procured—say ten for each pupil. In order to make the separation of the parts of the seeds easier, soak them in water over night, or, better still, when possible, secure seeds fully grown, but not dry. Before distributing the seeds, examine carefully enough of them to give some expertness in dissection. A book like Gray's "How Plants Grow," will assist.

Now, suppose you have chosen for the first lesson the seed of the yellow, shrubby lupine, and have given each of the class one of the full-grown but green pods. Holding in your hand a large branch of the plant with seed-pods and, possibly, flowers—for, like most California plants,

its flowers may appear out of season—your talk might be like this:

This plant is called lupine, and as there are many kinds of lupine, another name—like your given name—is necessary. Since the flowers are yellow, we might call it yellow lupine, but there are other lupines with yellow flowers. The others are all herbs—they die, at least to the ground, every year—hence we may call this one shrubby lupine. It happens, however, that there is another shrubby lupine with blue flowers. We must give this plant two names. It is *yellow, shrubby lupine.* As this plant sometimes grows to a height of ten feet, it has been called tree lupine; but James says that the hillside where he got this was covered with acres of it, and none of the plants were as high as his head; so he does not think the name a good one. Forty-four kinds of lupine have been found growing wild in this State. In all the States east of the Rocky Mountains there is only one kind of wild lupine. The leaves of some lupines turn toward the sun, and for this reason they have been called sundials. You can always know a lupine by its leaves. Their stems, with narrow leaflets at the ends, spreading like the ribs of an open fan, cannot be mistaken. The flowers are like those of a pea, but the flower bunches are different. The pods, too, tell us that lupines belong to the pea family. Next spring we shall try to find out how many of the forty kinds of lupine grow near us. Now we must study the seeds.

Open the pods, and observe that all the seeds—about nine in number—are fastened by short, thick stems. Pluck off one of the seeds and a deep scar is seen where it was fastened to the stem. Near this scar is a little white spot (*d*, in the figure) with a dark line through the center. This spot shows plainly on the brown coat of the dry seeds. Hold the seed with the spot toward you at the lower end. You have a view



Lupinus arboreus, Sims,

of the edge of the seed like this drawing on the board, (A). Turn the seed so its side is toward you with the scar at the bottom to the left, and it looks like the right-hand figure (B) on the board. Now take your knife and carefully cut the skin around the edge of the seed through the scar and the little spot; hold the seed with the scar as you see it on the board, and remove that half of the skin on the side next to you. Do you see anything like this drawing (C)? A green ball with a handle at the top, bent around on one side with its end reaching nearly to the scar. Now take off the remainder of the seed skin, and see if the seed is not in two parts, as represented on the board (D). If you break them apart take another seed, and by careful work you can spread the seed open as I have pictured it. It looks like a little plant with thick leaves, a short stem and no roots, and such it really is. Look carefully at the stem where these thick seed leaves join it. A tiny bud is there. The little seed plant has three parts; a stem, a pair of leaves, and a bud. In a few weeks

we shall be able to see how this awkward baby plant, so unlike a lupine, grows to resemble its parent. Next time you will learn how to make it grow.

Is lupine of any use? Yes; some kinds of California lupines are good food for cattle, and a kind of white lupine is cultivated in Europe for its seed, which is fed to stock.

THOUGHTS SUGGESTED BY A REVIEW OF THE SCHOOL CODES OF MANY LANDS.

Hints on School Organization.

BY PROF. G. V. LE VAUX.

[Member of the Royal College of Preceptors, England.]

[From an address delivered before the Nevada Teachers' Institute.]

In England, Ireland, and Prussia the standard of education is far higher than here, though not so general as with us; but in Canada and Australia it is not only higher, but far deeper and broader, while the professional requirements of teachers are much more thorough and extensive. The Hon. the Deputy State Superintendent of Education, (Mrs. Dr. Carr) in her official report of a visit to the Centennial, states that Queensland, a State still in her "teens," "had the most complete and best arranged exhibit of any part of the world," and that "Australia, our great rival, . . . distances us by far in the extent and variety of her manufactures." Here is a plain and patriotic hint that California had better look out for her laurels in time else the land of the Southern Cross will snatch them from her brow. Judging by official reports now in my possession, I have no hesitation in adding that Australia first beat us, quietly and unostentatiously, in educational matters, and then she found it easy to distance us in the matter of manufactures.

In Australian schools, there must be a teacher for every seventy pupils, or fraction of seventy, on the register, instead of 100 or 114 resident in the district as with us. In Canada, there must be one teacher for every fifty pupils, or fraction of fifty. In England they have one for every thirty; in New Zealand, the law requires one teacher for every sixty-five, or fraction of sixty-five, in attendance. So far as I know, Californian is the only country in the world where one teacher is supposed to efficiently educate 100 or 114 children of all ages, sexes, and grades of ability—such as are to be seen in average country districts. We might infer from the premises that our law-givers took it for granted that one California teacher was fully equal to two of any other nationality, were it not that our worthy State Superintendent, in his last biennial report, (page 18,) recommends the authorities to allow us, at least, a teacher for every eighty-five pupils.

In the Australian colonies, teachers being regarded as civil servants, are appointed to their respective positions by the Government—or rather by a member of the government, who is styled "the Minister of Education"—and as a necessary consequence, the local trustees have nothing to do with them officially. The duties of the trustees are restricted to the care of the school property. They make periodical reports, and are sort of general advisors to the Minister of Education.

A partial remedy for many of the shortcomings of our system would, I think, be found in township boards of trustees. They exist in parts of Canada, and are a great improvement on the petty district boards. Under a township board of education the schools are better graded, the best teachers get the best schools, and there is no political or local question at the bottom of school appointments. Moreover, each child has the privilege of attending the nearest school to his home, whether it be inside or outside his district. A change to township boards would advance the con-

venience and general interests of the public whilst promoting the personal comforts of the teacher.

I now come to consider the school-house and its "fittings." In my humble opinion this is one of the subjects in which our State falls far behind her Eastern sisters. Except in large cities, our school-buildings are far below the average standard elsewhere. They are badly planned, badly built, and sadly deficient in grace and taste, while their surrounding grounds are anything but attractive—no flower beds, no shade trees, no gymnastic apparatus, or cover from the weather, and in many cases no pump or other conveniences. In Canada and the Eastern States some of the schools have a palatial aspect, while the majority of them are models of neatness and good taste. According to the school act of 1872, Canadian trustees are bound to provide in their school-rooms nine square feet of ground space, and ninety-nine cubic feet of air space for each pupil-resident within their district; the school doors, for fear of accident by fire, must open outwards, and every class-room must be supplied with approved ventilators fitted in the walls. According to the Prussian laws, school children are now seated so as to face a dumb wall, and the windows are so arranged that light is admitted from the rear or over the left shoulder—never from the front. Hence their eyes seldom, if ever, suffer from school work. Blackboards, three feet in width, should line the interior walls of every school-room, at a proper distance from the floor; and above them should be hung paintings (life size) of the great and good men of this and other lands. When possible, each pupil should have a desk for himself—isolated from his companions. Cloak-rooms—one for each sex—should be attached to each school-room. The clothes-hooks in these rooms should be numbered, and each child should have that which corresponds to his register number. There should be wash-basins and towels, a looking-glass, and some brushes, a chair and small table in each cloak-room, so that the children may have the means of keeping themselves clean, neat, and tidy.

The school-house and fence, if of wood, should be painted white; and the windows should be protected by latticed shutters, painted green, hung on the outside, or else by Venetian blinds or some similar fittings inside. As in Eastern schools, the class-rooms and other apartments should be properly swept every evening and carefully dusted every morning—by the janitor, not by the teacher *a la* California.

In the public schools of England, until recently, they have had no fixed national system of classification; but in the high schools, with which I am better acquinted, they usually classified the pupils into *six forms*, after the model adopted in Eton by the distinguished Dr. Arnold. In Ireland, Canada, and Victoria, they organize their schools into six classes; in Queensland, Tasmania, and New South Wales the public schools are organized into *five* classes, instead of "three grades of eight divisions" as with us; and although ours may be, and doubtless is, the best system for cities and towns, yet, in my humble opinion, their plan is preferable in country districts—especially in mixed, or what are called ungraded, schools. I venture to believe that there is not a teacher of a country school in this room who strictly adheres to our eight-class system. I can find no provision in our school laws for a modification of this classification in country schools where there may be only one teacher to 100 pupils of all grades: hence I infer that according to the letter of the law this one teacher is supposed to teach exactly the same curriculum which prevails in towns where there is a teacher for each class, or for every fifty or sixty pupils, or eight teachers in all: that is to say, one country

teacher is expected to do the work of eight city teachers. If the scale of requirements prescribed be fair for the city it is evidently very unfair for the country, and *vice versa;* and if the degree of professional effort required from a city teacher for one class be just, it is not only inadequate, but impossible of performance in country schools where the same time and same effort must necessarily be of various application, in addition to being divided between eight classes or divisions. In our opinion the *five-class system* should be the maximum of division in the classification of country schools, while the eight-division system might be permitted in cities or towns. It appears to me that as the present classification is inapplicable in some schools and impossible in others, it would be wise to consider the propriety of modifying or simplifying the arrangement—retaining the same subjects as at present, but diminishing the number of classes or divisions, so that more time may be given to each. In my humble opinion a reorganization of our schools, retaining the three grades but subdividing some into five classes instead of eight, would be an improvement; at all events, it seems to be the organization which is preferred by several English speaking communities whose past history and present circumstances strongly resemble our own. Under such a system, there being but one teacher in the school, the first grade pupils would form one class, and the second and third would form two classes each; or five in all.

As a rule, I would not permit pupils to belong to two classes or divisions of different grades; but in giving collective lessons, object lessons, etc., pupils of the same grade, though of different classes, might be brought together temporarily with advantage. Care must be taken, however, to suit the subjects of study, and the mode of treating them, to the mental capacity of children, otherwise we cannot secure uniform progress.

On taking charge of a school the teacher may continue the classification of the respective pupils as he finds them, or reduce or promote them, as he thinks most judicious, but in either case it would be prudent, if possible, to hold a sort of *written* entrance or test examination in the more important subjects of school work. After examination, the teacher should file the written papers handed in by the pupils, so that he may be able to refer to them on any future occasion, should any question arise as to their individual or collective progress under his instruction. Reading, writing, and arithmetic are, perhaps, the best test subjects for the younger children, should circumstances not permit a thorough examination in the whole programme; but dictation, composition, higher arithmetic and the elements of geometry or natural science, are perhaps the subjects best adapted for the proper classification of the senior pupils.

Having completed the preliminary classification of his school, the teacher should critically examine, and test by actual work, the time table of his predecessor. It then becomes his privilege to adopt, reject, or modify the same, taking care that his own plan of work shall be presented to the school without unnecessary delay. In preparing his time-table he must carefully consider the wants of his school, the requirements of the State programme, and the natural or logical order in which the respective subjects (or parts of subjects) should be introduced to youthful and comparatively inexperienced minds.

Some time ago the English government, when about to reform its school system, sent out a Board of Commissioners to study educational matters in this and other countries, Dr. Fraser, the present Bishop of Manchester, who was Chairman of the Commission, stated on his return that the

city of Cleveland had the best school organization in America. We were excluded from the comparison, I believe, as the Commission did not visit this coast. For my own part, I may say that after studying the educational arrangements of many lands, with the eye of a practical and somewhat experienced teacher, I have come to the conclusion that we have one of the best organized and most efficient school systems of the world within our own borders—in the city of San Francisco. In that city the schools are thoroughly graded, the teachers are engaged during pleasure or good behavior, (which is equivalent to permanent employment) they are paid for every month in the year, and their salaries are increased a certain per cent. every five years. I venture to hope that the time is not far distant when an enlightened legislature, in obedience to your united request, shall extend similar favors to teachers in all parts of the State, or else create a commission of one or two members to travel in foreign lands, and report for adoption the best features of every system they may find in successful praetice elsewhere.

THE MICROPHONE.

The instrument which Professor Hughes has discovered (and which he proposes to call the "microphone," as the one which enables you to send sound to a great distance is called the "telephone") will certainly prove an astonishing step in advance, not only for the science of sound, but for all the sciences in which sounds are the symptoms of changes hitherto undiscoverable by man. It is, however, hardly right to contrast this instrument with the telephone, as the microscope is contrasted with the telescope. For the microphone apparently will be just as applicable to the hearing of distant sounds as to the hearing of sounds that are near. The telephone brings the sound from a distance, and the microphone magnifies the sound when it is thus brought near. The microphone, in fact, will be just as applicable to the sounds transmitted from Dublin or New York—if the latter can be transmitted so far—as to the sounds in a vibrating-plate which is within a few inches of the listener's ear. The telephone brings from a distance without magnifying—indeed, not without lessening greatly the sound it transmits—and then the microphone magnifies it, so as to make it even far more audible than it was to the ear of a close listener. The invention depends on so breaking, by the interposition of charcoal permeated by fine atoms of mercury, the currents transmitted by the telephone-wire that the sound is vastly increased by the interruption—just as heat is known to be vastly increased by a similar interruption of a current, even to the turning of metallic wire to a red or white heat. Thus the microphone will make a minute sound audible, whether it be close or far off. It is said that the march of a fly over the vibrating-plate is rendered as audible by this invention as the tramp of a horse, and that the mere breathing of the fly is heard almost like the trumpeting of an elephant. And this, as we understand is just as true of a sound transmitted from a distance, as a sound close at hand. Supposing the fly to walk over the vibrating-plate at one end of the telephone, the microphone will magnifiy whatever corresponding sound may reach the other end as much as it will magnify the sound at the end at which it occurs. We do not understand that it would be in any way impossible, for instance, to get a physician living in London—with the help of the microphone and the telephone—to report on the sounds in the lungs and heart of a patient in Birmingham. The stethoscope itself should be superseded by the microphone. But not only would the stethoscope be superseded, but the range of the new instrument would be enormous-

ly extended by the telephone, the two playing into each other's hands, so that a whisper in Dublin might be heard as a shout in Holyhead. It is this extraordinary power of combining the telephone and microphone together, which opens out such strange prospects as the result of this discovery. Indeed, associated as both may be with the phonograph—the instrument which records and bottles, as it were, speech, till some convenient future occasion for unbottling it—it is quite conceivable that the whisper of a dying statesman like Cavour's—"I will have no state of siege, any one can govern with a state of siege," —might be repeated after the expiration of a hundred years, in a hundred cities, each of them hundreds of miles away from the place where it was first uttered, in a voice audible to a great assembly, instead of only to the ear of an intently listening friend.

But the most curious results which we can at present anticipate from this marvelous microphone are results due not so much to the transmission of these sounds, either in space or time, as to the discovery through its means of new sounds now inaudible. It has often been observed that other creatures' ears must perceive notes which we do not at present perceive at all; must perceive the vibrations due to waves too short as well as to waves too long to affect the human ear. So far as our inability to see and hear depends on the absolute incapacity of the retina or the ear to be affected by waves of a given length, of course no microphone, any more than any microscope, will render them perceptible. The microscope does not show us new colors, and the microphone will not show us new sounds. But just as the microscope renders not only visible, but large and conspicuous, what we could not previously discern simply from its minuteness, so the microphone will render distinct and even loud what we could not previously discern, simply from the want of volume in the sound. The first result should be to provide these who are only deaf—whose auditory nerve is not destroyed—with a nearly perfect ear-trumpet—not of course, one which will enable them to gather in the general and confused sounds of a room with all the distinctness of good hearing, for the very essence of this instrument is that it can only magnify the isolated vibrations received on the vibrating-plate at the other end of the conducting-wire, but still complete for the purposes of any isolated sound; that is, sufficient not only to make it audible, but to make it perfectly clear and distinct. But far more curious results should follow. With the help of the microphone, it should be possible to hear the sap rise in the tree; to hear it rushing against small obstacles to its rise, as a brook rushes against the stones in its path; to hear the bee suck its honey from the flower; to hear the rush of the blood through the smallest of the blood-vessels, and the increase of that rush due to the slightest inflammatory action. In fact, the new instrument should add a hundred times as much to the means of investigating the facts of both vegetable and animal physiology, as the stethoscope added to the knowledge of the structure of the heart and lungs; for while the stethoscope only collected the sound, the microphone will magnify it.

That, however, which strikes the imagination most in this wonderful discovery is not so much what it is sure to do, as the wonderful world of possibility it opens. It is almost certain that a ray of light strikes the surface on which it impinges with a definite force, and Mr. Crookes certainly supposed that he had found the means of approximating to a calculation of that force. But if this be so, there must be a definite sound caused by light touching a surface, and the new instrument may enable us not merely to see, but to

hear light. It is quite conceivable that by the use of the microphone the chemist who is trying to analyze the spectrum of a star may be enabled to *hear* the first ray of the star strike upon his spectroscope, and to listen to the gentle rain of rays which follows while the spectroscope is exposed to that star, and then to exchange that gentle sound for that of the torrent which would follow when he exposed his instrument to the moon instead of the star. We may find that the rippling of the light from Sirius has a sound quite different in character from the rippling of the light from Arcturus or the Polar Star; and all of these onsets of starry light, if they can be heard at all, must make a sound as inferior to the cataract which rushes from the sun, as the dash of a brook is inferior to the roar of Niagara. It may be, too, that the sound made by the different prismatic rays, as they strike a surface, will produce a harmony as delightful and as susceptible of indefinite variation as the prismatic colors themselves, so that the most exquisite musical instruments might be produced by merely opening the ear to the sounds (at present too slight for any ear to perceive) corresponding to the colors of the rainbow, and varying the combinations at the discretion of the musician. Wagner, in one of his great works produced in this country, has, we believe, a "Rainbow Chorus," which was greatly admired, but which did not, without help from the words of the libretto, suggest to the audience that association with a rainbow which he had imaginatively ascribed to it. May it not be possible, with the help of the microphone, to give us a true rainbow music—a music really caused by the sound of the same waves which, in their effect on the optic nerve, produce the vision of the rainbow? This is, of course, mere dreaming. But one of the most delightful results of great discoveries like this, is that it fosters so much a dreaming power not quite divorced from possibility, and therefore not quite of a kind to discontent us with the world in which our actual duties lie.—*The Spectator*.

READING IN THE EIGHTH GRADE.

BY MRS. AURELIA GRIFFITH.
[Principal of the Union Primary School, San Francisco.]

[An essay read before the Training Class for Inexperienced Teachers.]

II.

Low, indistinct, slovenly reading marks a careless, inefficient teacher. Throw life into your work, and you will impart it to your pupils. It is said that when a pompous divine asked Robert Ingersoll *how* he could, as he affirmed, improve the work of God, that Mr. Ingorsoll answered he would "make health catching instead of disease." His conclusion was hasty, or his observation superficial. *I* think every mental, moral, and physical influence *is* contagious. Boys have their top-time and kite-time; all know that "evil communications corrupt good manners; no close observer has failed to see that *health* as well as good temper *is* catching; and no experienced educator but knows that "as the teacher is, so are the pupils." Several years ago, I had an excellent illustration of the last fact. One teacher who was full of energy and life, always received pupils from the class of another, who was her psychical antipodes. From mental torpor, the pupils in a few days began to develop under the new influence, throw off their sluggish movements, and in a few weeks in manner would become entirely changed. But to return to my subject. Punctuation carefully taught, *never* by teaching to read thus: "Willie is older than Katie, (comma) and Katie is older than Carrie. (period)"; or "Willie is older than Katie, (one) and Katie is older than Carrie, (one

two, three, four)," but taught by oral example, will prevent that rhythmical enunciation which, by *combining*, murders two beautiful arts—music and elocution. Remember, even in teaching beginners, that reading has a dual mission: first, to the reader; second, to the hearer—full understanding and clear expression. To cultivate a full understanding, do not teach young children the definition, but the use of words. Require them to make sentences from the words given, and insist that no two give the same sentence, thereby securing the undivided attention of all. Before a child leaves the eighth grade it should be able to make statements and ask questions both orally and in writing. See that the written sentences always begin and end correctly. Never give children work to do and then neglect to examine how it is done, even if attended to at all. Let the pupils find the teacher always observant and thorough, and they will become attentive and industrious. Be sure that you gain the attention, and keep the attention of every member of your class while conducting a general exercise, and no general exercise is of greater importance than teaching the proper use of language. Our Deputy Superintendent, Mr. Stone, truly says in his report for 1877, that, "The frequent misapplication of words by pupils of the higher grades, shows conclusively that they have not been carefully trained as to the true meaning and use of words which have passed under their notice in their various studies."

Clear expression can only be obtained by persistent practice. It demands fluency of pronunciation, care in accent and inflection, and pureness of tone. While you teach children to speak with distinctness and force, be careful that the tone is not of that high pitch belonging to the head voice, nor strained until it sounds cracked and unmusical. Teach pure, round, full tones, and give such discipline as shall best secure a strong yet sweet voice. Your own example and habit of speaking will have the greatest influence in forming tone and expression, for children are sure though unconscious imitators. Pure tone, however, requires freedom from colds. And here, allow me to suggest that every teacher should instruct her pupils how to preserve health. Our course of instruction very properly demands that to every grade should be given instruction in morals and manners. It should *also* demand that in every grade the simple laws of health should be carefully taught. And now permit me to ask how many try to preserve the health of the children by physical exercises, and a judicious change of employment? How many remember that they are entrusted with the physical as well as mental welfare of their pupils? How many remember that young children are usually delicate, and that they require unusual care and tenderness? How many are careful that, while the room is kept well aired, no mother's little darling is exposed to a direct draught? How many remember that the child may miss that mother's love, and is often lonely during the first days of school life? Even an old teacher and mother will sometimes forget this and lose patience. Do not pronounce me egotistic, at least unbearably so, if I relate a personal experience proving this. A sensitive mother-boy had been allowed to remain day after day with an older sister, to whom he clung whenever I attempted to remove him. Finally, as he was interrupting her studies and learning nothing himself, I resolutely determined to remove him, even if it required physical force. But he frantically clung to his sister, and when I carried him from the room, screamed and kicked after the fashion of baby tyrants. As my strength became exhausted so did my patience, and by the time I reached the hall with him, I had come to the conclusion that a good old-fashioned motherly

application of the hand would improve the young gentleman's temper. (I am certain I felt that to give it would do me good). But as though a voice spoke in my ear, something said—it must have been an angel influence, even if I was not in an angelic mood—"Stop, this is an extremely sensitive child. If you strike him, you do him a great injury—an injustice. Take him in your arms and talk to him like a mother." Bending down, I said: "Do you not wish me to love you, my boy?" Instantly throwing his arms around my neck, he replied: "Yes, but I can't write." Taking him in my arms with a real motherly feeling tugging at my heart, I explained what I desired, and he, feeling confidence in the love I really experienced and expressed, quietly took my hand, and obediently went with me to the proper class. I told him in the teacher's presence that I should come every day to see how he improved, and privately advised the teacher to handle him as such a delicate organization ought to be handled. From that day to this, the boy has never given any teacher a moment's trouble. As such a delicate organization ought to be handled! This suggests that terrible stumbling-block to inexperienced teachers—partiality! Let me assure you, that if you strive to do just what is right, after careful thought and due deliberation, that impediment will prove a delusive shadow. While human nature is as various as the faces that express its character, you cannot treat all children alike. A sharp word gives far more pain to the sensitive child than corporal punishment to one of stolid temperament. However, do not overlook a fault in a sensitive child any sooner than in the stolid one. In fact such neglect would probably do more harm to the former than to the latter.

Yet, as my subject, given by our worthy Superintendent, is "How to teach reading in the eighth grade," I will try to be faithful, and return to it. When your pupils begin to use books, take great care that they handle them properly. Two weeks ago, Mr. Swett gave you an admirable lesson on this point, which it will not be necessary for me to repeat. Yet I think he did not altogether reach the quarter where the fault belongs. I believe that more and better attention is paid to the proper position in reading by primary than by grammar schools. No matter how well children are taught in the primary grades, if in any class afterward they are allowed to lounge, they will do it, and I would suggest to our Superintendent, that the new "Course of Study" be made to instruct old teachers, as well as the inexperienced, grammar teachers as well as primary, in this and a few other points. Often *old* teachers fall into grooves, and need lifting out!

Order and neatness are not only of importance to primary classes, but of primary importance to grammar classes. But I am wandering from my subject again, and will close by a summary of negatives.

Do not, in your eagerness to appear to advance your pupils, allow children to take their readers too soon, nor attempt to read a sentence until they know all the words used in it.

Do not teach the definition of words and pauses to young children but by their *use*.

Do not allow the attention of any child to wander while you are giving a class exercise.

Do not fall into dreamy, inattentive habits while in the presence of your class.

Do not read, work, or even think upon any subject but the one you receive pay to do.

Do not forget that you are upon your honor, and that if you cheat the class out of one moment of the time you are paid to teach, you are guilty of an actual theft.

Do not permit any child to be idle, but while you are hearing individual recitations give the others work to do, and see they do it.

Do not allow the pupils to read in regular order, or to read any given number of words, sentences, or paragraphs.

Do not allow children to know *when* their turns to read will come; thus they will have the benefit of the whole, instead of a part of a lesson.

Do not permit any child to read so long that the others become impatient or inattentive.

Do not have any class in reading so large that pupils tire, and lose interest.

Do not pass by any fault because it is too much trouble to correct it, or you have not time to notice it.

Do not imagine that *telling* pupils their faults is sufficient notice, but see they recognize each error and correct it.

Do not confuse them by running over a list of faults, but let each be met and overcome separately, treating the most important first.

Do not tolerate a high-pitched, sing-song concert exercise.

Do not permit rude corrections or interruptions while a pupil is reading.

Do not suggest an answer to your own question by an expectant manner, or peculiar wording, thus: "You stop at a period, do you not?" A child will answer such a question as desired, without understanding it.

I will illustrate this fact, even if I end with a story utterly foreign to my subject. I heard the story but the other day, although it was said to have occurred some years ago. I will not vouch for its truth, but if it is not true, it ought to be, for it teaches a true lesson.

Two gentlemen were visiting a primary school in San Jose. One was at that time Superintendent of our San Francisco public schools, while the other was entirely unacquainted with them, or the peculiarities of any institution patronized by young intellects. Said the Superintendent to his friend, "I am going to show you how children will thoughtlessly answer and confirm any thing they suppose will please another." So when invited to talk to the little ones, the Superintendent asked: "How many children here know that I am superintendent of the San Francisco public schools?" Every little hand went up; they all knew it, although they never saw him before. "How many know that my name is Mr. Denman?" Again every little arm was raised, though not one probably had ever heard of him before; but instinctively they liked the gentleman, and desired to please him, and when the delightful questioner impressively continued: "How many of you know that I am a horse?" in their eager, thoughtlessness, they all knew it, and testified to that knowledge by putting up their innocent little sign—a sign of more than the answer to the absurd question indicated.

If the story is false, at least the moral of it is not. Teach your pupils to think before they speak or act, if you would not have them blunder through life's lessons. And teach them *carefully*, in order that no backward step need be taken to regain the proper path. As a simple example, I will refer to the practice some teachers have of requiring pupils to begin all the tabulated words with capital letters, giving no better reason than, "It helps them in writing," while the rules for the use of capitals afterward contradict such a practice, and puzzle the young student.

But to finally return to and close my subject! Teach beginners in reading to fluently pronounce and understand words before they attempt to read, if you would prevent jumping from word to word, as though they were stepping-stones purposely placed at intervals, to carry the young reader above the stream of thought.

There are teachers who say they are too poor to subscribe for an educational journal. If this is true, they are too poor to teach.—*Ohio Monthly.*

DETAILED METHODS IN ARITHMETIC.

I. LESSONS FOR BEGINNERS.

An Adaptation of the Grube System, from "Methods of Teaching," as given by MR. SWETT *to the Normal Class.*

Grube's method consists in teaching beginners from four to six years of age, during the first year, all possible combinations and comparisons of numbers limited by 10. He gives, in substance, the following principles :

"1. Each lesson in arithmetic must be also a lesson in language. The teacher must insist on readiness and correctness of expression. As long as the language for the number is imperfect, the idea of the number will be defective.

2. The teacher must require the scholar to speak as much as possible.

3. Answers should be given sometimes by the class in concert, and sometimes by the scholar, individually.

4. Every process must be illustrated by means of objects.

5. Measure each new number with the preceding ones.

6. Teachers must insist on neatness in making figures."

ORDER OF STEPS.

First Step.—Illustrate the required combinations by means of *counters* in the hands of the children themselves, and by other objects in the hands of the teacher. Each child must be supplied with 10 small square wooden blocks, like the blocks of a checkerboard. If the blocks cannot be had, use shells, corn, pebbles, pins, etc.

Second Step.—Express the same combinations on the blackboard or on slates both with *marks* and with figures.

Third Step.—Take the same combinations mentally with abstract numbers.

Fourth Step.—Practical problems in applied numbers.

HOW TO BEGIN.

First Term or Year.

☞ The time required for this work will depend upon the age of the children, as also somewhat upon their natural ability. Children from four to five years of age may require a year to complete it, while those of six years may master it in from three to five months.

I. *THE NUMBER ONE.*

1. Hold up one counter, one hand, one finger, one slate, etc.

On your slate make one straight mark, one dot, one cross, etc.

On the blackboard make one mark, one dot, one cross, etc.

2. Place one counter on the middle of your desk ; take it away ; how many have you left ?

Make one mark on your slate ; rub it out ; how many marks are left ?

3. Send the class to the blackboard and let them make the mark for one thus, | ; and also the figure thus, 1.

II. *THE NUMBER TWO.*

1. Each of you take one counter and place it by itself on your desk ; now take another and place close to it ; how many counters have you ? (Require the answer in a full sentence.)

Make one straight mark on your slate ; make another close to it ; how many have you now ?

Go to the blackboard : make one mark ; another close to it ; how many now ?

Clap your hands once ; again ; how many claps ?

Rap on your desk once ; again ; how many raps ?

2. *Counting.*—Place one counter on your desk ; a little way off from the first one,

place two counters close together, thus, * *. Count, *one, two; two, one.*

On your slates make marks thus, | ||, and count forwards and backwards.

3. *Addition.*—I. Place one counter on the desk; place another counter close to it; how many have you now? *Ans. I have two counters.* How many counters are one counter and one counter? *Ans. One counter and one counter are two counters.* [The teacher will further illustrate with books, pencils, crayons, etc.]

II. *Slate and Blackboard.*—Make one mark; another one near it. How many marks have you made?

[Continue with rings, dots, crosses, etc.]

4. *Subtraction.*—I. Place two counters together on your desk; take one away; how many have you left? *Ans. I have one left.* One counter from two counters leaves how many? *Ans. One counter from two counters leaves one counter.*

[Teachers will continue with fingers, hands, books, and other objects.]

II. *Slate and Blackboard.*—Make two marks; rub out one; how many are left? Make two marks; rub them out; how many are left? *Ans. None are left.* Two taken away from two leaves how many?

5. *Multiplication.*—I. Each of you put one counter on the desk; now put another with it; how many times have you taken one counter? *Ans. I have taken one counter twice.* Two times one counter are how many counters? *Ans. Twice one counter are two counters.*

II. *Slate and Blackboard.*—Make one mark; now another. How many times have you made one mark? *A. I have made one mark twice.* Then two times one mark are how many marks? *Ans. Two times one mark are two marks.*

6. *Division:*—Place 2 counters on the desk. Call up two boys and give one counter to each. Question thus: How many counters has John? How many has Frank? If two boys divide 2 counters between them, how many has each boy? Show the similarity of the expressions, $2 \div 2 = 1$, and $\frac{1}{2}$ of $2 = 1$.

7. Comparison.

Give one counter to John and two to Frank. How many counters has John? Frank? How many has Frank more than John? How many more is two than one?

How many counters has John less than Frank? Then one is 1 less than two.

Blackboard.—Illustrate the same with marks.

8. Applied Numbers.

a. Addition.

1. John ate one apple at recess, and another apple at noon; how many apples did he eat?

2. Frank had one dime and his father gave him one more; how many dimes did he have?

3. The teacher will make up ten similar questions.

b. Multiplication

1. John went a-fishing, and twice he caught one fish; how many fishes did he catch?

☞The teacher will make up ten similar applications.

c. Division.

1. If two boys divide two marbles between them, how many will each have?

☞Dictate ten similar questions.

9. Figures and Signs.

Teach the use of the four signs $+ - \times \div$. Tell them that $+$ means "and," or "add to," and that it is read *plus;* that $-$ means "to take away," and that it is read *minus;* that $\times$ means "times," and is read "*multiplied by*"; that $\div$ means "to be contained," and that it is read "*divided by*"; that $=$ means *equal to, equals.*

Illustrations of the Use of Signs.

☞Let the children make each combination first with the counters.

BY MARKS.	BY FIGURES.
|+|=||	1+1=2
||—one mark=|	2—1=1
|×two=||	1×2=2
||÷||=one time	2÷1=2
	2÷2=1
	½ of 2=1

10. ANOTHER FORM.

After teaching the preceding, give the children the regular forms of written arithmetic, thus:

BY MARKS.

Add.	Sub.	Mult.	Div.
|	||	|	||||
+|	—one mark	×two	once
||	|	||	

BY FIGURES.

Add.	Sub.	Mult.	Div.
1	2	1	2|2
+1	—1	×2	—|—
2	1	2	1
			½ of 2=1

11. TABLE TO BE TAUGHT.

2 pints make 1 quart.
1 quart equals 2 pints.

III. *THE NUMBER THREE.*

1. *Measuring.*

☞*First illustrate by using counters.*

BY ONE.	BY TWO.
1+1+1=3	2+1=3
3—1—1—1=0	1+2=3
3—1—1=1	1×2+1=3
3—1=2	3—2=1
1×3=3	3÷2=1 and 1 remainder, or
3×1=3	⅓ of 3=1 and ⅓.
3÷1=3	

2. *Second Form of Expressing.*

Add.	Subt.	Subt.	Mult.	Div.	Div.
1	3	3			
1	—1	—2	1		
1	—1		×3	1|3	2|3
3	1	1	3	3	1⅓

NOTE.—Read 3÷1, at first, thus: 1 is contained in 3 three times; 1×3 thus: 3 times 1 equals three. The idea of "to be contained" must precede the higher and more difficult conceptions of "dividing."

3. *Practice.*

1. How many are 2—1—1+2 divided by 1
2. 1+1+1—2+1+1—2+1+1=how many?

☞The teacher will make numerous examples, and require answers *immediately*.

4. *Applied Numbers.*

☞The teacher will make up 10 questions.

IV. *THE NUMBER FOUR.*

1. *Measuring.*

☞*First illustrate by using counters.*

BY ONE.	BY TWO.
1+1+1+1=4	2+2=4
4—1—1—1—1=0	4—2=2
4—1—1—1=1	2×2=4
1×4=4	4÷2=2, or
4×1=4	½ of 4=2
4÷1=4	

BY THREE.

3+1=4	4—3=1
1+3=4	4—1=3
1×3+1=4	4÷3=1 and 1 R., or
3+1+1=4	⅓ of 4=1⅓

2. *Second Form of Writing.*

Add.	Add.	Sub.	Sub.	Mult.	Mult.	Div.
2	3	4	4	2	1	
+2	+1	—2	—3	×2	×4	2|4
4	4	2	1	4	4	2

3. *Practice.*

1. 2×2—3+2×1+1—2×2=how many?

☞The teacher will give 10 or 20 similar questions.

4. *Combinations.*

1. What number must be doubled to get 4?
2. 2 is one-half of what number?
3. 1 is the fourth part of what number?

☞Give similar questions.

5. *Practical Illustrations.*

1. Name 4 animals that have only 2 legs.
2. Name 4 animals that have 4 legs apiece.
3. Name a *thing* that has 4 legs.
4. Name a *thing* that has 3 legs.

Table to be Learned.

4 gills make 1 pint.
2 pints make 1 quart.
4 quarts make 1 gallon.

☞Pass around the class a pint measure and a quart measure, and then make up numberless practical examples.

WHY NOT SPEAK PROPERLY?

The careless, slip-shod manner in which people who deem themselves educated, use common English words in their every-day speech, is scarcely short of amazing. If appearances deceive in any particular it is certainly in this; for if we were to infer the degree of culture possessed by the men and women we meet daily from the character of their verbal expression, we should set it, in most cases, at a point much below their claims. Every word in the English language has its peculiar significance and application, just as would be rationally thought, and the cross uses and false applications so common in ordinary parlance are totally unwarranted.

Society has fallen into a vicious habit in the use of terms, and it is time that a strong effort was made to eradicate it if we would preserve the English tongue in its purity and simplicity. The little volume, "The Right Word in the Right Place," and Mr. R. G. White's larger book on "Words and their Uses," are excellent monitors for popular reading, and show clearly the errors we are constantly committing without a thought of their glaring absurdities.

"*Aggravate.* This word should never be employed in reference to persons, as it means merely to add weight to—to make evil more oppressive; injury is agravated by insult. It is sometimes improperly used in the sense of irritate, as 'I was much aggravated by his conduct.'

"*Balance*, in the sense of rest, remainder, residue, remnant, is an abomination. Balance is the difference between two sides of an account—the amount which is necessary to make one equal to the other..... Yet we continually hear of the balance of this or that thing; even the balances of a congregation—of an army.

"*Bountiful* is applicable only to persons. A giver may be bountiful, but his gift cannot—it should be plentiful, or large. 'A bountiful slice' is absurd.

"*Fetch* expresses a double motion; first from and then toward the speaker. It is exactly equivalent to 'go and bring,' and ought not to be used in the sense of 'bring' alone.

"*Calculate*, besides its sectional misuse for think, or suppose, or suspect, is sometimes in the principal form—calculated—put for likely or apt: 'That nomination is calculated to injure the party.' It is calculated (designed) to do no such thing, though it may be likely to.

"*Couple* applies to two things which are bound together or united in some way. 'A couple of apples' is incorrect; two apples is meant.

"*Dirt* means filth, and is not synonymous with earth or soil. Yet people sometimes speak of a dirt road, or of packing dirt around the roots of trees they are setting. They mean *earth*.

"*Expect* looks always to the future. You cannot expect that anything has happened or is happening, but only that it will happen.

"*Get* means to obtain, not to possess. 'He has got all the numbers of the *Christian Instructor*.' 'Have you got good molasses?' 'They have got bad manners.' Why will people persist in introducing the word in such sentences as these, where it is evidently superfluous?

"*Help meet.* An abusive use of these two words, as if they, together, were the name of one thing—a wife—is too common. The sentence in Genesis is: 'I will make him a help meet for him;' that is, a help fit for him. There is no such word as helpmeet.

"*Lie—Lay.* Persons not grossly ignorant sometimes say they will lay (meaning lie) down, that they have laid (lain) an hour, or that the hammer is laying (lying) by the tacks. Lie means to recline; its past tense lay—'I lay there all night'; its

participles, lying and lain. Lay (used of present time) means to put something down—one lays a carpet; its past is laid—'I was interrupted while laying it, and it was not laid until night.'

"*Love* rules the heart, not the stomach. You love your wife, or ought to; but favorite articles of food you *like*.

"*Observe* should not be used for say, as in the oft-heard sentence: 'What did you observe?'

"*Sit*, often mispronounced set, is occasionally written so; but it is to be hoped rarely."—*The Canada School Journal.*

A PROPER TONE IN READING AND SPEAKING.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

The Rev. Edward E. Hale has written a letter in which he calls for a reform in the bad voices to which, he says, his countrywomen are trained. He ascribes the shrill, harsh voices of our women not to climate, but to the custom of the grammar and the primary schools, which makes little girls "read up," as it is called. "The teacher," he says, "really expects a child of five to fill with her voice a room fifty feet square and fifteen feet high. The result is unnatural and detestable. The child ought not to read any louder at school than she talks naturally. But just as long as Miss Lovechild or Miss Screamwell, the teacher, expects the poor thing to "read louder," so long will she change her home voice for a school scream, and in the end the school scream takes the place of the home voice. Lear says of Cordelia,

'Her voice was ever soft,
Gentle and low, an excellent thing in woman.'

"If I had money enough, I would have that written in large signs, in letters of gold, and hung in every school-room in the country. I do not write in the interests of public speaking. I should have no tears if I never heard a woman make a speech. But in the interests of reading aloud, of the school-room, and of talk, which is probably the thing which does most to make life happy, I urge a softening of these unpleasant tones."

So much for Mr. Hale. I do not think the voices of American women generally are shrill and disagreeable, and it seems to me that the genial satirist's charge is too sweeping when he says it is the "custom" of the public schools to force children's voices. In some country schools in New England this may be done, but I think the schools do not generally fall into this vicious habit. The cause of the fault complained of is the bad example of some parents and teachers, who use only nasal, head tones, who confound loudness or fulness of voice with a high key, and who do not know what good, that is, natural reading is. So, such a teacher gives the direction to "speak up," and the child begins and continues to read upon the highest notes of her voice, which is soon injured. The result is the unnatural tone in reading which is sometimes called the "school tone." To remedy this evil, the teacher must cure the fault first in himself, if it exist there, so that he may show the children what good, easy, natural reading is, and he should practice them in the same manner, making them begin to read upon the middle tones of their voices. Let him endeavor, by judicious vocal exercises, to strengthen the middle and lower registers of the voice, and select pieces which require a great variety of tones. With distinct articulation, the children will then be easily heard and understood, and the reading not being labored will be agreeable to the ear. I never knew a child of five to be expected or asked to fill with her voice a room of the dimensions stated by Mr. Hale; but, if in good health, she can fill a much larger space out of doors, when at play. The trouble is not in reading in a

large room ; young children seldom do that—but that the training of the child in the use of its voice is altogether faulty and contrary to nature ; the effect is a strained, harsh, and disagreeable voice.

Mr. Hale speaks in his letter of his knowing his countrywomen in Europe by their loud, shrill voices, which could be heard the whole length of the public dining-rooms. So far as I have heard, it is the brazen-faced, showy, sham, shoddy aristocracy that have these horrible screeching voices ; it is their way of showing that they are *high-toned.* But we have all known women whose voices thrilled and charmed us like the sweetest music, because their hearts were full of kindness and good-will. Some people have thought there was no better test of character than the voice. It may sometimes give a wrong impression of the speaker—but most often a correct one—for the maxim, "Out of the abundance of the heart the mouth *speaketh,*" is true in more senses than one. Shakespeare tells us that it was Cordelia's, the good daughter's voice, which was "ever soft, gentle, and low"; the thankless daughters were harsh and loud-voiced. Let the girls, then, never forget that pleasant dispositions make pleasant voices, and that the sweetest voice is attuned to a loving heart.

EDITORIAL DEPARTMENT.

Teachers' Institutes.

This is the season of Institutes. During July, August, and until December, teachers will gather, in almost every county of this State, for purposes of mutual improvement. Instruction in the newest and most approved methods of teaching is the main design of these meetings. How to secure the most efficient instruction is an important question for consideration.

At present there are some serious imperfections in the manner of conducting these meetings. In fact, many able teachers incline to the belief that but little benefit is derived from attendance.

This is not as it should be; and Superintendents who are now earnestly seeking to improve the efficiency of the teaching force of their jurisdictions, would do well to change the usual methods.

To specify some of the more common faults. The instruction is unsystematic. Superintendents seldom prepare a programme in advance of the meetings. The theory of efficient supervision is that the Superintendent in his visits to and examinations of schools, carefully observes all faults in methods of teaching and in discipline. He directs the attention of the teacher to all shortcomings, but leaves the question of improvement to the teacher's own study and the lessons of the Institute.

The Superintendent should endeavor to so direct the instruction of the yearly Institute, that teachers may there be trained to avoid the errors in methods of teaching and in discipline, which he has observed in his yearly round of visits and examinations.

Another fault is the discussion of too many subjects. Teachers listen to so many things, all, apparently, of such great importance that they go back to their school-room duties with no clearly defined ideas on any topic—their "heads are in a whirl," and, perforce, they teach and govern precisely as before.

Again, Institute lecturers make the common mistake of going too deeply into the philos-

ophy of their subjects. The Institute is not a normal school, and time permits merely a plain, concise statement of the elementary principles of education—nothing more.

Our ideal of a Teachers' Institute is an organization with a definite end in view—the correction of faults in education, clearly understood by the supervising authority and ascertained by actual examination of schools. A programme of exercises should be prepared to meet these special faults. This programme should be carried out by active teachers, men who are not mere dabblers in educational theories, but who are successful teachers. Moreover, every lecture should be made as practical as possible. If classes of children can be obtained to illustrate the instruction given, so much the better; if not, the Institute itself should be considered a class.

By following some such system, we believe that much greater benefit will be derived from Institutes than at present.

Not on the State Course of Study.

Teachers feel that to carry out the State Course of Study gives them ample employment. But few consider that they have leisure for anything else—particularly for something not in the Course. Yet we have one suggestion to make that we hope some teachers will act on.

The great dearth of the hundred little villages scattered everywhere over this coast, is something in the shape of a library. Gathering places for the young of both sexes are needed. And no gathering place can be so generally useful, so free from objection, with so good a tendency both moral and intellectual, as the library. The great curse of all the villages of this coast is that "the young men have nowhere to go."

Saloons there are in plenty—too plentiful. The souls of the young yearn for companionship, and if they cannot get it at home, they go to the tavern. How many teachers in their country experience have remarked the difference between the young men and their sisters! The girls are modest, intelligent, amenable to instruction, and requiring no discipline. The young men are too often awkward, boorish, unwilling to study, more anxious to spend their evenings at the village tavern than at home.

The cause of this difference is obvious. The young men, with their more active habits, are not satisfied with the simple, unvarying round of home duties and home pleasures. They desire other companionship, and so do their sisters. But in their case the desire is an active one, characteristic of their sex.

We once heard Anna Dickinson say that there was but one good way to save human souls—and that is to "out-bid the devil for them." So in this case—if the thousands of young men who now, rapidly and surely, are led to ruin, are to be saved and led to a better and more useful life, it must be by offering them something better, more ennobling than the "grog-shop."

We repeat it—let a library be established in every little village. A library not merely where books are kept to be taken out once a week; but a place where young and old, parents with their sons and daughters, may meet every evening for conversation, and song, and reading. A place to which a young man may go with anticipation of refined and ennobling pleasures, and from which he may seek his couch with a clear conscience.

The Kindergarten.

Much energy is being expended and a very positive effort being made to establish kindergartens on this coast, and make them live. It is something like transplanting tropical plants to northern latitudes—like carrying humming-birds to England, expecting them to live. The *habitat* of the kindergarten is Germany, and it has never been quite acclimatized outside of its birthplace. It is the peculiar growth of a peculiar locality, and the elements of its environment cannot exactly be produced elsewhere in their true proportions and qualities. Froebel could be an outgrowth of American society about as readily as Malibran out of Chinese society. This is an exageration we admit, but it shows the point of our argument. Kindergartens are essentially a German pro-

duction, and a kindergarten in any other country will be a kindergarten with a difference.

The kindergarten in England is a German child nourished on English milk, English air; and Dorothea would know at a glance that it had not been born and grown in Vaterland. So the kindergarten in America is a Rhine flower with American sap in its veins. Any foreign institution transplanted must be naturalized to become vigorous, and in becoming so must suffer change. Fifteen hundred such schools were planted and flourished in Germany in a few years. But we can no more expect it in this country than we can expect poets to be developed by the score in the gold room, or in Wall street, or the San Francisco Stock Board. We believe the school will live and grow in California, but it will be a modified variety, and a slow growth. The germ has been set in Oakland—a very good place to start in. It ought to grow there if anywhere on this coast. But we imagine the child must instinctively feel that the atmosphere is not quite native. The MOTHER does, we are sure.

It is looked upon with doubt, suspicion, with indifference—positive coldness sometimes. For it is a foreigner—not an American. It is Dutch, not Yankee. It has German ways, odd and queer; too slow, *much* too slow for the average public school pupil, who is working forward to a point where he can earn money, and it is not quite elegant enough for the fashionable, who float listlessly on the surface of society. The teachers do not like it over much—it is *outré*, and they do not care to be introduced. The official who *could* do something, fondles it, when the mother is looking at him, but "damns it with faint praise" when she is not. The Board regard it at a very respectful distance; the specially conservative element—we mean the economical element—and are doubtful about standing godfather to the bantling. How much will it cost? Just a fraction more perhaps than a native born American, but that fraction is enough to keep the conservative member higgling over it.

Oakland has the germ of a true kindergarten planted in her midst. She ought to support it. OUGHT to, we say, if there is any virtue in a principle or any truth in TRUTH. For the kindergarten does not need proving in these days. Oakland has her opportunity! We shall see if she seizes it.

There have been a dozen efforts to make kindergartens live on this coast. They die about as fast as they are born. They have starved to death. There is no evading that charge. They have been killed by neglect. There are quite a number now in San Francisco—christened kindergartens—that look like charity children. They may not be entitled to support; they do not get it certainly. It required the magnetism of Felix Adler to stir into life even the German residents of this city, and to effect an organization for a kindergarten. But they have moved; they have shown life; they have opened their eyes and kicked; while Oakland has been dreaming over that fractional cost.

It has been repeatedly shown that this style of training is best for children below our proper school age:—that children will be better trained in such a school than in nine-tenths of the homes, or schools either, if they could be admitted; then why hesitate? What State can better afford to pay the slight excess of cost for one such school than California, or what towns better able than Oakland and San Francisco.

Now we shall wait with some interest, and such patience as we can command for further action, though it be but galvanic.

Characteristic Economy.

The last Legislature is generally named a very liberal one. They were very liberal in appropriating the people's money for every conceivable purpose. New positions were created, almost by scores, to which large salaries were affixed. Tax-payers, in every part of the State, groan over the increased burden of taxation during a season of unexampled depression.

But, the other day, we learned that our sapient legislators were not altogether reckless and extravagant in their expenditures. They had economized. One clerkship, at least, had been abolished. For the past

eight years the force of the Office of Public Instruction has consisted of the State Superintendent, a deputy, and one clerk. During the present administration, with the growth of the State, the labors and duties of the State office have increased greatly—so greatly that the State Superintendent has frequently been obliged to secure additional assistance *at his own expense.*

But our public-spirited and very liberal Legislators were evidently unable to appreciate the benefits to this state of efficient educational supervision. They saw a good chance to reform—to retrench. So they abolished the clerkship, which leaves the entire duties of the Office of Public Instruction to be performed by the State Superintendent and a deputy. We can not enumerate all the duties required of this office. The correspondence, alone, necessitates the services of one person. The book-keeping of the office requires the attention of another. Under the new law, there is no one to attend Teachers' Institutes, to consult with County Superintendents, to determine the meaning of the law in disputed cases constantly referred to the State office for adjudication, or to the thousand and one things which it would be a work of supererogation to mention here and now.

This law, fortunately, does not go into effect until next year. The Legislature then will have an opportunity to repeal an act, not only unjust in itself, but which appears to discriminate against the interests of our schools.

Proceedings of the State Board of Education.

We call attention to the record, in our columns, of the proceedings of the State Board of Education. It will be seen that the following resolution was adopted :

"*Resolved*, That the PACIFIC SCHOOL AND HOME JOURNAL be adopted as the organ of this Board, for the publication of its proceedings."

Hereafter, this journal will present to the teachers and school officers of California, full and authentic transcripts of the proceedings of the State Board. This will make our publication more valuable than ever as an educational journal.

At their last meeting, the Board adopted a "Revised Library List," a more important action than is generally known. We shall explain and comment upon this list in the September JOURNAL.

The attention of Superintendents and teachers is called to our PUBLISHERS' NOTES, on advertising page 10.

We understand that many school districts in the southern counties of this State allowed their annual election for Trustees to go by default. Will Superintendents inform us how this is?

The honorary degree of A. M. has been conferred upon John Swett, Ex-State Superintendent, by Dartmouth College. Mr. Swett is a native of New Hampshire. The same degree was conferred on Mr. Swett by the College of California, in 1867.

Subscribers who have failed to receive any number of the JOURNAL of this year will please notify us immediately. A number of complaints of non-receipt have reached us lately, and we shall investigate, and where possible, rectify mistakes. We desire to give perfect satisfaction in issuing our publication; and we recognize the right of subscribers to receive what has been paid for.

GENERAL NOTES.

Prof. Mendenhall, of the Ohio State University, has been appointed Professor of Physics in the Imperial University of Japan, at a salary of $5000 a year.

The late Mr. George Smith left in an almost complete state, the history of Sennacherib, the Assyrian king, from cuneiform inscriptions procured by him. The speedy publication of this history in London is announced. Mr. Rassam, who has lately gone to Nineveh and Babylon, has already discovered some remains containing long inscriptions.—*Ex.*

An artesian well at Pesth, Hungary, which supplies hot water, has now reached a depth of over 1000 yards, and, when completed, will be the deepest of its kind. A curious feature of the well is the use of automatic machinery in boring, the water-power being supplied by the well itself.—*Ex.*

Some time ago the French government made an appropriation of $20,000 in aid of an exploration of Central Africa, proposed by Abbe Debaize. The expedition left Marseilles on the 21st of April, expecting to reach Zanzibar on the 30th of May, from which point the party would start, as is usual in African explorations.

A simple method of preventing houses from being struck by lightning, as practiced in some parts of France, consists in placing bundles of straw, attached to broom handles or other sticks upon the roofs of the houses, in an upright position. In the Tarbes district a large number of farm-houses have, it is said, been completely protected from lightning in this manner.—*Exchange.*

The first instance on record where a Chinese man has given a collection of books to an American institution, has just occurred in New Haven, where Yung Wing, a graduate of Yale College, has given to the college library a valuable collection of Chinese books, numbering about 1300 volumes, embracing classical, historical, and poetical works, encyclopedias, etc. —*Harper's.*

An English paper gives an account of an interesting experiment with the microphone: A microphone was placed in the pulpit of a chapel in Halifax, England, on a recent Sunday, and connected by a private telegraph line with the residence of a gentleman over a mile distant. Every part of the service was distinctly heard at the gentleman's honse, with the exception of a few words rendered indistinct by the preacher's becoming a little excited, and shaking the microphone. So faithfully did the instrument do its work that the chapel-keeper was heard to close the doors after service, walk up the aisle and up the pulpit steps in conversation with some one else.

The good work which General Armstrong has been carrying forward in the education of freedmen at Hampton, Virginia, still prospers. During the past school year 332 pupils have been in attendance. The graduating class numbered fifty-seven. In the year the students earned by their own labor on the farm and in the shops $12,236. The printing-office shows a cash balance of $326. The farm has all the necessary appurtenances—stables, a large barn, smith-shop, etc. The young men are taught the lessons of industry and self-reliance. The Institute is under the care of the American Missionary Association, but owes its prosperity largely to the enthusiasm and tact of General Armstrong, the principal. His manliness and his entire self-abnegation have won for him the esteem of the people of East Virginia, and as a consequence "Hampton" is popular in all the surrounding region.—*Harper's Weekly.*

From *Harper's Weekly* we select the following personal in regard to the late George S. Appleton, a member of the great publishing house of D. Appleton & Co.:

"The late Mr. George S. Appleton was not only an excellent man of business, but a gentleman of culture, especially as a linguist, and possessed exceptionally fine taste in works of art. He was a very just man in reference to his employes, and mindful of the interest and comfort of those who served the house faithfully. 'You earned more last year than your salary; your salary will be increased next

year, and you will find an extra amount to your credit for last year,' is the sort of talk that some of the persons in his employ will remember to have listened to ; and when, perhaps, they were feeling just a little tired from overwork, it would not have been strange if they heard him say, in his bluff, hearty way, 'go off, take a vacation, take your wife along ; I'll pay the expense, and get some one to do your work while you are away.' Few men were more uniformly guided by a high sense of integrity than Mr. Appleton, and his death removes from the publishing guild one of its most intelligent and esteemed members."

THE STATE BOARD OF EDUCATION.

Upon call of the Secretary, State Superintendent Carr, the State Board met at Sacramento, July 23d, at 3 P. M.

Present, Governor Irwin, State Superintendent Carr, Superintendents Mann, Allen, Gilson, Davis, Chipman, Landes, and Dunbar, a full Board.

The minutes of the last meeting were read and approved.

A communication from the State Board of Examination was received, recommending the issue of Life Diplomas to a large number of teachers who had made application therefor. On motion of Prof. Allen, the communication was referred to a committee of three. The chair appointed Messrs. Allen, Mann, and Dunbar as such Committee.

Supt. Carr, Chairman of the Committee on School Libraries, presented a revised list of books for district school libraries. Governor Irwin and others made inquiries as to the books on this revised list. On the suggestion of Supt. Mann, consideration of the list was postponed until the evening session, in order to give members of the Board an opportunity to examine it.

At the evening session, the Board adopted the list recommended by the Committee.

[This list is now in course of publication. Superintendents and teachers will bear in mind that the law is mandatory in requiring *those books only*, that are on this list, to be put into the libraries.]—ED. JOURNAL.

Supt. Carr presented a number of communications and petitions, alleging that Johnson's Cyclopædia, which at a former session of the Board, had been especially recommended "on account of its greater cheapness and superior merit," "is a sectarian work, inasmuch as it discriminates unduly against the Roman Catholic Church."

An animated and extended discussion ensued on these communications.

They were first filed. Then a motion to rescind the resolution, passed at the last meeting declaring Johnson's Cyclopædia the better work, was put and lost. At the evening session, a motion was made to reconsider the vote to rescind. After an animated debate, this motion was carried, and the original resolution was rescinded by the following vote : Ayes—Irwin, Carr, Allen, Chipman, Landes ; Noes—Mann, Gilson ; not voting—Davis.

After the resolution endorsing Johnson's Cyclopædia was rescinded, Mr. Mann moved that a special committee be appointed to determine the question of the sectarianism of both cyclopædias, and report at the next regular meeting whether either or both came within the prohibition of the State law, and should be dropped from the list of library books. This motion met with so much opposition that Mr. Mann withdrew it, and substituted the simpler motion that Johnson's Cyclopædia be dropped on account of its sectarian character. He urged this motion as the only consistent and proper course for the Board to pursue, after its previous action in relation to the communications of Archbishop Alemany and others. The motion was lost.

Supt. Mann introduced a resolution, which, after amendment, was adopted, to the following effect :

Resolved, That the PACIFIC SCHOOL AND HOME JOURNAL be adopted as the organ of this Board for the publication of its proceedings.

The following resolution, offered by Mr. Gilson, was also adopted :

Resolved, That after the grade of a school has been established it shall not be changed within six months.

The Committee on revision of the State Course of Study reported that the action of the late legislature had been such that they had really nothing to do as they could now see. They, however, asked for further time ; which was granted.

The case of a teacher, whose diploma had been withheld on account of charges made against him, was referred to Messrs. Landes, Carr, and Gilson for examination.

The Committee to whom were referred the names recommended by the State Board of Examination for Life Diplomas, reported in favor of the following, to whom the Board then ordered diplomas issued :

Augustine, S. M.	Lehan, M. S.
Alderson, M. G.	Libby, Mrs. Josephine
Babcock, H. C.	McMeans, A. C.
Brumley, Miss M. I.	Macdonald, Kate
Badgley, O. E.	Magoon, Wm. H.
Blanchard, J. E.	Miller, Miss Emma J.
Bodkin, John H.	Menges, Miss Carrie A.
Bragdon, H. H.	Martling, J. A.
Casterlin, J. B.	Morgan, H. J.
Casterlin, Mrs. M. A.	McCroskey, R. C.
Du Bois, C. G.	McCulloch, H. E.
De Pencier, S. F.	Morris, Matilda Parker
De Mondran, F. V. C.	Merwin, Charles E.
Emery, Cordelia	Michener, Mary E.
Elliott, May E.	Morse, S. A.
Gurney, B.	Marcuse, Mrs. E. C.
Gamble, John	Pendegast, H. B.
Grainger, W. C.	Roberts, B. F.
Galusha, N. H.	Reavis, W. S.
Goin, J. W.	Reed, Dayton A.
Hinton, J. W.	Smith, James
Hutton, Julia A.	Smith, Nehemiah
Harrison, Miss Ella	Spooner, Alfred
Hardy, Miss Irene	Smith, George
Ham, Charles H.	Scully, T. J.
Hemenway, Maria M.	Spring, E. W.
Howe, N. P.	Spring, Mrs. Fannie
Hatch, E. Florence	Tucker, Mrs. E. R.
Haff, Mrs. Mary B.	Underwood, J. G.
Heckman, W. H. H.	Vincent, Mrs. M. E.
Hall, Mary Ward	Withington, Augusta
Ingraham, Duncan G.	Wilson, Geo. W.
King, Florella	Walbridge, Jeannie
Lowell, John Marshall	Wheeler, Alanson
Lichtenthaler, Miss Mary	Watson, Mrs. M. L.
Lloyd, Miss Mary A.	York, Jr., John

The Board then adjourned.

CALIFORNIA.

State Superinfendent Carr sends us the following important decisions by the Attorney General. The first of these questions is of especial importance, and forms the subject matter of many inquiries addressed to the State office.

QUESTION ONE.

Can an addition to a school-house be made by a Board of Trustees without a vote of the people of the district?

QUESTION TWO.

Can the County Superintendent call the County Institute to meet with the State Association outside of the County?

QUESTION THREE.

Do any of the recently amended statutes have the effect of resuscitating certificates which have already expired? This question has been sent us by a number of teachers. [Editor.]

HON. E. S. CARR, SUPERINTENDENT OF PUBLIC INSTRUCTION—*Dear Sir:* In reply to your communication of the 23d inst., I would say,

1st. Under the provisions of Subdivision 5, Sec. 1617 Political Code, I think that it is imperative on Boards of Trustees to submit to a vote of the district whether or not they shall build an addition to their school-house. The reason of the provision is plain, that is, that they shall not go to any considerable expense without first getting the consent of the district by a popular vote so to do.

2d. While I can find no positive law prohibiting County Superintendents from calling an Institute outside of the county, still I think it is contrary to the spirit of

the law, and might work a great hardship on those who are required to attend.

3d. *Not directly*, but as the law made those who *have* held first grade certificates one year, with five years' experience in teaching, eligible to an educational diploma, and the opinion of the Attorney General has been given, that the words "have held" should be constructed literally, and did not necessarily exclude expired first grade certificates, the same principle will apply to first grade county certificates which cover five years of experience in teaching.

Respectfully yours,

Jo. HAMILTON,
Attorney General,
by MATT. F. JOHNSON.

COMMISSIONER EATON'S REPORT.

We have received a copy of the Report for 1876, of Gen. John Eaton, United States Commissioner of Education. The publication of this report has been delayed for more than a year by the dilatory and hostile spirit of a few members of the House of Representatives, who by refusing to vote the usual appropriations have greatly hindered the excellent work of the Commissioner. The report is of even more than usual interest; and the statistics are more full and accurate than ever before.

General Eaton, after alluding to the historical activity in connection with education that has characterized the year, the effects of the financial depression in impairing to some extent the efficiency of the schools, the fact that in many instances retrenchment has been sought first in the reduction of teachers' wages, the effect of the American system of education in harmonizing the opposing forces of capital and labor, the importance of universal education as the great safeguard of the Republic, and the distribution of responsibility in the matter of education, proceeds to consider the subject of

NATIONAL AID TO EDUCATION.

He shows that the policy of extending aid to education by grants from the General Government dates from a period anterior to the adoption of the Federal Constitution. Since 1785 Congress has appropriated in land grants nearly 96,000,000 of acres of land, and nearly $48,000,000 for the encouragement of public education.

TEACHERS AND THEIR SALARIES.

The total number of teachers employed in public schools in the States and Territories of the Union (Georgia and Idaho only not reporting) is 249,283. Most of the States and Territories furnished full and accurate statistics; but Arkansas, while giving the total number of teachers, does not tell how many are males and how many females, nor their pay. Florida gives the number of teachers, male and female, but gives the pay of neither. The same is true of Kentucky, New York, and the Territories of Dakota, New Mexico, and Wyoming. Texas estimates the number of teachers, and gives the pay.

The Commissioner presents a statement of the monthly compensation of teachers in public schools, with the remark that "Any one who should examine the column of the average salaries paid would not, from the nature of the case, expect the compensation of teachers to be the first point of attack in the efforts to retrench public expenses." The District of Columbia pays the highest average salary to male teachers, $120 per month. Arizona pays the highest salary to female teachers, $90 per month. In the District of Columbia, Nevada, and Arizona, the average pay of male teachers is over $100 per month. In California it is $85; in Massachusetts, $84.78. Arizona pays its female teachers the highest average monthly salary;

next comes Nevada at $85 per month; then the District of Columbia, $80; then California, $68.15. The lowest salary paid to male teachers is in Alabama, $22 per month; the lowest to female teachers is $17.04 per month, in Maine.

SUMMARY OF SCHOOL STATISTICS.

The Commissioner here presents "as full and accurate a statement of the public school work of the country as it is possible for the several States and Territories to give with their present methods of collecting statistics." The total school population in States and Territories for 1876 is 14,306,158 against 14,007,522 for 1875. The total enrollment for 1876, 8,825,185, against 8,756,659. Ten States and five Territories do not report the average daily attendance. The others give a total of 4,248,848.

The Commissioner remarks, in this connection: "After all the possible imperfections in these figures as a basis of consideration have been eliminated, it is clear that not far from one-fifth of our youth who should be under instruction are continuously without it. How little benefit some may derive who are included among the enrolled will be seen when it is remembered that in some cases those are reported who have been in the school a single day, and that, as a rule, none are stricken from the enrollment who have been in school a single week; and further, looking into the column of the average duration of school days in the several States, and the column of average attendance in those States able to report, our estimate of the culture attained is further reduced. Here is a subject for the reflection of those who believe that educators are over-zealous, and are urging public education to a point beyond the demands of the country. Let them take this margin of two millions of untutored school population in country and city, and following its several members through life, observe how large a share of the idle, pauper, vicious, and criminal classes are recruited from it, or from among the number of children who make the great difference between the total enrollment and the average attendance in the several States."

EXPENDITURE FOR PUBLIC SCHOOLS.

Every State and Territory, except Wyoming, is able to report its income for public school purposes, making a total of $87,349,528 against $88,648,950, reported in 1875. Georgia and Vermont are unable to report their expenditures. "The rest of the States and Territories show a total expenditure of $84,005.333. New York, Pennsylvania, Ohio, Illinois, Massachusetts, Iowa, Indiana, and Michigan, exhibit the largest school income in the order named. New York, Pennsylvania, Ohio, Illinois, Massachusetts, Indiana, Iowa, and Michigan, show the largest expenditure, and in the order named." The expenditure per capita of school enumeration varies from $24.78 per pupil among the Cherokees, to 57 cents in Alabama.

Other topics will be presented to our readers in future numbers of the JOURNAL. Want of space prevents a more extended reference at present.

CORRESPONDENCE, NOTES, AND QUERIES.

Mr. Bryant's "Index Expurgatorious."

From the *Educational Weekly* we copy the late William Cullen Bryant's "*index expurgatorions*," which was kept in the office of the New York *Evening Post*. It was a serious offense for any writer on the *Post* to use one of the forbidden words. Teachers may find the list of value.

We suggest adding "lady-teacher," for female teacher; "gentleman-teacher," for male-teacher to the "*index*." We doubt if those who are in the

habit of saying lady-teacher, or gentleman-teacher realize how absurd the expression is:

Aspirant,
Authoress.
"Being done, built," etc.
Bogus.
Bagging for "capturing."
Balance, for "remainder."
Collided.
Commenced, for "begun."
Couple, for "two."
Debut.
Donate and donation.
Employee.
"Esq."
Endorse, for "approve."
Gents, for "gentlemen."
"Hon."
Inaugurated, for "begun."
Initiated, for "begun."
In our midst.
Ignore.
Jeopardize.
Juvenile, for "boy."
Jubilant, for "rejoicing."
Lady, for "wife."
Lengthy.
Loafer.
Loan, or loaned, for "lend" or "lent."
Located
Measurable, for "in a measure."
Ovation.
Obituary, for "death."
Parties, for "persons."
Posted, for "informed."
Poetess.
Portion, for "part."
Predicate.
Progressing.
Pants, for "pantaloons."
Quite, prefixed to "good," "large," etc.
Realized, for "obtained."
Reliable, for "trustworthy."
Repudiate, for "reject," or "disown."
Retire, for "withdraw."
Role, for "part."
Rowdies.
Roughs.
Secesh.
States, for "says."
Taboo.
Transpire, for "occur."
To progress.
Tapis.
Talented.
The deceased.
Vicinity, for "neighborhood."
Wall street slang generally: "Bulls, bears, long, short, flat, corner, tight," etc.

EDITOR JOURNAL: Through your journal I would like to refer the following problem in advanced mathematics for solution.

Given the lines bisecting the acute angles of a right-angled triangle to find the sides of the triangle.

I am able to find three equations expressing the relations of the known and unknown quantities, but I am unable to reduce them. I have worked by analytical geometry, and do not think a solution by trigonometry possible. Hoping some of your correspondents will help me to a solution, I am, very truly, etc.,

A. F. PARSONS.

Las Tablas District, July 24th, 1878.

Examination Questions.

The following questions were prepared by the State Board of Education, and used in this State at the regular semi-annual examination in June:

ORTHOGRAPHY.

(100 *credits*.)

1. Spell the following words: (50 cr.) Mohammedanism, guarantee, plaintiff. naivete, trapeze, coalesce, achieving, correspondence, invidious, celestial, growth, resuscitate, acquittal, complaisance, abridgment, inveigle, Byzantine, Samoa, Hawaii, Orkneys, Jamaica, Nice, miscellaneous, chapparral, folly, indelible, venue, logic, embarrass, corrugate, sanctify, rivaled, reeled, toxic, telephone, pavilion, stenographic, judgment, biennial, possess, gaseous, lily, official, puncture, lamb, fugue, prairie, harass, liquid, calliope. 2. Correct the following, (to be written on the board): Ocilate, matras, virtu, collum, bumbelbe, crisalis, capshun, latitued, fotograf, slited. (20 cr.) 3. Punctuate and capitalize the following. (20 cr.) The sink of the humboldt, death valley and the salt lake basin have puzzled geographers." 4. Write five words, each containing one of the following dipthongs, *oi*, *oy*, *ow*, *ou*, and *au*. (10 cr.

GRAMMAR.

(100 *credits*, 10 *credits each*.)

1. State the mood, tense, and voice of the verbs in the following sentences: I am struck. Do not run. He is reading. Dost thou sleep. He will have been thinking. 2. Analyze the sentence: "I have heard that the papers report him to have been killed." 3. Define conjugation. What is a synopsis? 4. Write the possessive case, singular and plural of deer, goose, it, lady, man. 5. Correct the following sentences: "He has mistook his true interest." "I intend to summons him." "He has trod on my toes." "Neither smoking or refreshments are allowed here." "He was obliged to fly the country." 6. "Jeffreys, the *then* judge, was cruel." Parse then. 7. Which of the auxiliaries denote *emphasis*, which denote *possibility*, which *power*, *necessity* and *futurity*? 8. When must nominatives connected by *and*, have a verb in singular number? 9. When should *one another*, and *each other* be used? 10. What is the difference between *later* and *latter*, *rise* and *raise*.

ARITHMETIC.

(100 *credits*.)

1. (*a*) Find the G. C. D. of 492, 1044, and 744, (*b*) the L. C. M. of 256, 372 and 522. (10 cr.) 2. Demonstrate by analysis (*a*) that $\frac{5}{9} \times \frac{4}{7} = \frac{20}{63}$; and (*b*) that $\frac{3}{7} \div \frac{4}{9} = 2\frac{7}{8}$. (10 cr.) 3. (*a*) If $\frac{5}{9}$ of a farm is worth $4500, what is $\frac{3}{4}$ of it worth? (5 cr.) (*b*) If when wheat is 7s. 6d. per bushel, the bakers' loaf will weigh 9 ounces, what ought it to weigh when wheat is 6s. per bushel? (5 cr.) State the above examples by proportion, and give reasons for each statement. 4. (*a*) How many yards of surface on the interior of a room 24 ft.

6 in. by 32 ft. 3 inches, by 14 feet high? (*b*) cubic feet in the same room? (10 cr.) 5. (*a*) Why is the product of .03 by .002 equal to .0006? (5 cr.) (*b*) What decimal is equal to $\frac{1}{4}$ of $3\frac{1}{2}$ taken from 3-5 of $8\frac{3}{4}$? (5 cr.) 6. Define, 1. Interest; 2. Business Discount; 3. Net Proceeds; 4. Commission; 5. Proportion. (10 cr.) 7. (*a*) Interest on $500, for 97 days, at $1\frac{1}{4}$ per cent. a month? (*b*) Interest on $350, for 1 year, 7 months and 5 days, at 6 per cent. a year? (10 cr.) 8. (*a*) Give the board measurement of 125 planks, each 20 feet long by 16 inches wide, and $2\frac{1}{2}$ inches thick. Diagram to illustrate the method. (*b*) Extract the cube root of 50.623. (10 credits.) 9. If 6 ranks of wood, each 128 feet long, 3 ft. wide, and 6 ft. high, were piled together in the form of a cube, what would be the height of the pile. (10 cr.) 10. What are the first steps to be taken in assessing a tax? What sum must be assessed to raise a net amount of $5674.50 allowing $2\frac{1}{2}$ per cent. commission on the money collected? (10 credits.)

GEOGRAPHY.

(50 *credits*.)

1. Describe the origin of *icebergs*, and give a reason why they are not found in the North Pacific Ocean. (5 cr.) 2. State the analogies in the general form of the two great continents, and compare their mountain and river systems. (5 cr.) 3. Name five cities of the United States in the order of their commercial importance. (5 cr.) 4. Through what waters would a cargo of wheat pass, shipped from Chicago to St. Petersburg? (5 cr.) 5. State the causes of the annual cycle of the seasons? 6. Specify by name the countries extending around the globe on 36° north latitude, beginning with Japan, and assign causes for the density of population. (5 cr.) 7. To what governments do the following islands belong, viz: Iceland, Majorcia, Malta, the Bahamas, Cuba, St. Helena, Vancouver, Madeira, Catalina Island, Tahiti?

THEORY AND PRACTICE OF TEACHING

(50 *credits*.)

1. State briefly how you would conduct a class recitation, (*a*) as to position of class; (*b*) management: (*c*) Object. (10 cr.) 2. Give an example of your method of teaching percentage. 3. Explain as to a class the shortening of days in winter. (5 cr.) 4. What is the relation of public education to the perpetuity of a free government? (5 cr.) 5. How would you cultivate truthfulness in your pupils? (5 cr.) 6. Of what benefit are forms of analysis in mental arithmetic? (5 cr.) 7. Explain how you would teach children of ten years of age to write letters and compositions? (5 cr.) 8. State the primary objects of a school, and the respective duties of (*a*) teachers, (*b*) pupils, and (*c*) parents, in carrying out these objects. (10 cr.)

WORD ANALYSIS.

(50 *credits*.)

1. State the difference between a primitive and a derivative word. Give five examples of each. (10 cr.) 2. Define both prefixes and suffixes to each of the following words: construct, logic, credit, sincere, revise. (10 cr.) 3. Form verbs from the words crown, alive, fog, crime, telegram. (10 cr.) 4. Give five examples in the formation of words from Latin roots, and five from the Anglo Saxon. (10 cr.) 5. Explain the difference in meaning of the following words, when either a prefix or a suffix is added: Collection, temperate, sphere, timid, life. (10 cr.)

MENTAL ARITHMETIC.

(50 *credits*.)

1. What is the interest of $75 for 7 months, at 6 per cent.? 2. What number is that of which 9 is $\frac{1}{4}$? 3. What is the cost of 7 books, at $37\frac{1}{2}$ cents each? 4. $\frac{1}{4}$ is what part of $\frac{3}{4}$? 5. 20 is 5 per cent. of what number? 6. How many yards of carpet, 1 yard wide, will be required to cover a floor 17 feet by $13\frac{1}{2}$ feet. 7. Seven times a number is 15 more than four times the same number. What is the number? 8. Five times a number minus 14 is 48. What is the number? 9. A merchant sold two carpets; for one he received 25 per cent. more than it cost, and for the other 25 per cent. less than he paid. How much did he gain or lose by the sale of both? 10. Reduce 9-12 to a decimal.

The State questions in History, Algebra, Physics, Physiology, Natural History, Constitution of United States, School Law, Drawing, and Music will be published in our next issue.—EDITOR JOURNAL.

As we go to press, the *Popular Science Monthly* comes to hand, with as varied and attractive a table of contents as ever before. It is not too much to say that the elevating and refining influence of this journal on American thought is already perceptible.

Educational Intelligence
FROM
STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

The cosmopolitan schools of this city have been rendered much more efficient under the measures inaugurated by Supt. Mann. The languages have been concentrated in actual cosmopolitan schools; in many of the primary classes, instruction in the foreign language (either German or French) as well as in English, is given by the regular class teacher, who is specially appointed to her place on account of fitness in the foreign langauge, as well as in English. This is gradually doing away with special teachers, thereby obviating one strong objection to the cosmopolitan schools—their extra cost. The Board have already effected a reduction of the teaching force, and a saving of $12,000 per year in this one item alone.

The right sort of retrenchment has really been inaugurated in this school department. The Board have determined that teachers' salaries shall *not* be reduced, and, as the school apportionment has been reduced ten per cent., the strictest economy is to be practiced. Supplies of every description, which were formerly furnished with a too lavish hand, are now only supplied when urgently necessary. It is calculated that in paper alone, which has cost the department more than $5000 per year—a saving of 50 per cent. will be effected. And so in proportion in other particulars, a similar economy is being practiced.

The instruction in military drill has been abolished in the schools of this city. Cause—economy.

Prof. A. C. Bloomer, late of Haywards, is teaching in this department. He is a first-class teacher—an acquisition.

Prof. Philip Prior, late Principal of the Salinas High School, and formerly a teacher in this city, is again here, engaged at present in the evening schools. We hope he will remain, as such teachers are needed here.

We understand that on account of the "hard times," and the consequent depreciation of real and personal property in this city, the school fund is likely to lose $50,000 more than had been anticipated. This, in addition to the $100,000 arbitrarily deducted by the Supervisors, will make a large deficit, despite the strictest economy.

This department is weak in the comparatively small number of its grammar schools. We believe that experience in other large cities demonstrates that the best results can be attained where the greatest uniformity exists. The condition of things here concisely stated is this: A large number of our schools, necessarily, contain only primary grades; many of the grammar schools have two or three first grades, three or four second, from three to five third, from three to five fourth, two fifth, one or two sixth, one seventh, and one eighth. It will be seen that these schools are, what may be aptly termed "top-heavy." In order to keep the grammar classes full, pupils are promoted, mainly, from the outside primary school, over which the grammar masters have no supervision, and where the manner of instruction is often very different from that preferred in the grammar school. Uniformity, consequently, suffers. Our ideal of a well-graded grammar school consists of one first-grade class, two second, three third, and four fourth grades, in all ten grammar classes: thus the grammar master should have supervision, either in his own building or in his district, of about double this number of primary classes. The result of some such system of grading will be greater uniformity in instruction, better discipline, and more satisfactory results.

Ormond M. Lissak, of San Francisco, has passed his examination at West Point successfnlly, and is now a cadet.

There are three Japanese students in the Boys' High School of this city.

LOS ANGELES COUNTY.

Work has commenced on the new school-building in Anaheim. When completed and furnished it will cost about ten thousand dollars, and will be one of the prettiest and most commodious school-houses in southern California.

Anaheim school district has 345 children of school age.

The Anaheim school opens August 12th. The former teachers have all been selected for the ensuing year. Prof. J. M. Guinn is Principal, and has given this school a high rank as an educational institution.

Within the limits of Anaheim school district there are growing in orchards 38,000 orange and

1400 lemon trees. We know boys that hanker to go to school in such a locality.

The new Board of Trustees of Santa Monica public school have re-elected Miss Clara B. Tullis assistant in that school. Mr. McPherson has chosen other business, and his successor has not yet been elected.

The following teachers have been re-elected to positions in the Los Angeles public schools: C. H. Kimball, L. D. Smith, Mrs. Jones, Mrs. Du Bois, Misses Bird, Prescott, Dickerson, Hodgkins, Babcock, Packard, Meyers, Salsig, Simons, Peabody, Addis, Turner, Witherow, Mrs. Stackpole, Mrs. Aubrey, Mrs. Onstott, Mrs. Means, and Mr. S. H. Butterfield.

Out of sixty-three applicants before the County Board of Examination, only fifteen received certificates—one first grade, eleven second grade, and three third grade.

NAPA COUNTY.

A proposition for a tax of twenty-five cents on the hundred dollars for schools in Napa City was voted down.

At the teachers' examination in this County ten certificates were granted—two first grade, six second grade, and two third grade.

The amount of money needed in Napa City for an eight-months' school is $10,372; the total amount received from State and county is $8,805.

The public schools of Napa opened on the 22d July, with B. E. Hunt as principal. A vote is to be taken on the question of raising $10645 for school purposes.

SONOMA COUNTY.

G. M. Trick, a teacher and printer of Petaluma, has been elected principal of the Lompoc school, Santa Barbara County.

Of the twenty-eight applicants at the last session of the Sonoma County Board of Examination, eighteen passed and obtained certificates. Seven were referred to the State Board.

Wilson district must be a good place for a teacher to locate in. They made up a party recently of over 300, and went to the shore of the "biggest ocean in the world"; staid all night, and had a hilarious time generally. At the recent election of trustees, "our jolly old captain was re-elected unanimously for a three years term, though he tried hard to resign." After business was over they were all invited to *taste* of Steadler's wine; and they tasted, and they laughed and talked, and enjoyed themselves generally for an hour, then adjourned to the house of Mr. Corless, an ex-trustee, where they were entertained until tea-time; then came tea, cake, more wine, and dainties of various kinds, toasts, speeches, etc., etc. Then Mr. Corless gave the newly elected trustees a ride to Petaluma, and by that time they began to think that an election for school trustee was not a very *dry* affair. Those trustees may expect some applications from this city next year.

The trustees of Christian College, at Santa Rosa, have decided to sell the property, and the Catholics are negotiating for it.

Mr. Kilpatrick is teaching in Santa Rosa.

The election of trustees in Santa Rosa turned upon the question of continuing the high school, and the result was favorable by a vote of 344 to 247.

D. C. Clark is principal of the Sebastopol school. Miss Mattie Crane is teaching in Monroe district; Miss Mattie Ware in the Wright district.

The school deparrment of Petaluma is out of debt. The attendance at the high school is larger than ever, and over 500 are enrolled in the grammar department. C. E. Hutton is principal of the high school, with Mrs. Hutton assistant. M. E. C. Munday is Principal of the grammar department. Messrs. Hutton and Munday also conduct a Normal class for teachers.

The next County Institute will meet at Santa Rosa in September.

N. A. Morford, Principal of the St. Helena public schools, has taken charge of the St. Helena *Star*.

By the report of the librarian of the Petaluma Library, out of 675 volumes taken out in June, 545 were romance, or about 80 per cent., showing very conclusively the taste of the readers. Only 3 per cent. of either history, biography, or travel were read, and not one-half that amount even in science or poetry.

HUMBOLDT COUNTY.

In the Eureka schools over 500 pupils are in attendance, being over 60 to each room; and they begin with nearly $7000 to credit of the school fund, showing the school finances to be in a healthy condition.

MARIN COUNTY.

Supt. Augustine has made an apportionment by which each district gets $1.00 for each child of school age, the amount being $1769.

Marin County teachers' Institute will meet at San Rafael, on August 21st.

Gracia district voted a $500 tax, July 27th.

Aurora district will vote on a $400 tax, Aug. 3.

Black district school opened on the 22 ult. with Mr. W. I. Clark teacher, re-elected.

In the Novato district, P. McHugh is teacher.

SANTA CRUZ COUNTY.

School trustees have been on the war-path this year. The Principals of the Hollister, Salinas, and Castroville schools have been deposed, and many of the teachers changed. In Santa Cruz there has been a sweeping change.

George Furlong, late of Castroville, has taken charge of the Lindley school.

Report says: "The Supervisors will cut down the school apportionment, and the school year will be several months shorter than usual. If the same apportionment be made as last year, the schools of this district will run a full year, and we know of no reason why the Board should be so narrow-minded as to reduce the educational apportionment. If they must cut down, let them do it in something else."

The colored citizens of Watsonville asked to have the separate school for their children abolished, and the children put into the other schools, on the ground of economy and *right*. The request was denied by the Board of Education, and a teacher appointed for their school. She went to the school, but only two pupils appeared, and they insulted her. Much discussion has grown out of the request, and bad feeling; but the Board has been generally sustained. If the request had been granted it was feared that the white children would leave, and riot reign in the school yard.

LAKE COUNTY.

The Middleton public school will open next Monday, under the supervision of S. T. D. Pencier, assisted by Miss Minnie Crump. Mr. Pencier has been honored by receiving the appointment of Postmaster of Middleton.

O. T. Boardman has engaged the Pleasant Grove school for the fall term.

Miss Annis Fees commenced school in the Clover Creek district on Monday last.

Mr. Morford and Miss Benn will have the Kelseyville school for another year.

J. F. Scott and Miss Stinson will continue at Lower Lake for a year to come.

Rev. J. L. Woods has been elected Principal and Miss Ollie Millington, of Santa Rosa, assistant, of the Upper Lake public school.

In that superior local paper, the *Lakeport Bee*, Editor Wallace pays us the following handsome compliment: "The SCHOOL AND HOME JOURNAL for July is a valuable number. Bro. Lyser is entitled to a great deal of credit for the care and ability evinced in making the JOURNAL a success. Every teacher should subscribe for it."

SANTA CLARA COUNTY.

It is pleasant to know that there are communities in this State which thoroughly appreciate efficiency. The Trustees of Gilroy, in this county, in electing Prof. A. W. Oliver for the sixth year to the Principalship of the high school, did credit to their judgment, and advanced the best interests of their schools. They, furthermore, granted Prof. Oliver a male assistant in the grammar school, thereby relieving him of considerable work, and enabling him more thoroughly to superintend the schools of the city. Mr. Kaufman, a recent graduate of the Normal School, and a gentleman who ranked high in his class, assists Prof. Oliver.

ALAMEDA COUNTY.

There is a class which contains 135 pupils taught by one teacher in the Oakland department.

H. C. Babcock, lately Principal of the Marysville grammar school, has been appointed to the Principalship of the Hayward schools, in this county. This is one of the best schools in this State, and as Mr. Babcock ranks as one of our ablest teachers, both Hayward and the teacher are proper subjects of congratulation.

The cosmopolitan school in Oakland has been abolished. Cause—economy, and opposition to teaching foreign languages in American schools.

The Freshman Class which enters the State University this year is the largest ever admitted.

Supt. Gilson has had bound, and has in his office, the work in penmanship and composition of all the schools in his county. He is ready, in this way, to make comparisons; and to ascertain what improvement is made by the pupils in every district.

BOOK NOTICES.

THE ELEMENTS OF RHETORIC. By James De Mille, M.A. New York: Harper & Brothers. San Francisco: Payot, Upham & Co. 12 mo. pp. 564.

There is no doubt that a knowledge of rhetoric enables a reader to appreciate beauties in literature which would otherwise be unseen. The author says in his preface that the study commends itself to readers rather than to writers, inasmuch as it tends towards a finer discernment and a higher appreciation of such qualities as clearness, elegance, and rhythm. But he by no means ignores its importance to writers. He shows that while an author may be successful although primarily ignorant of rhetoric, he will still be forced to learn its principles in a wearisome and unmethodical manner—that of experiment.

The work is very comprehensive. It is divided into six parts, of which three are devoted to "Style," one to "Method," one to "the Emotions," and one to "The General Departments of Literature." All these are minutely divided and subdivided. In fact, the book itself is a striking example of method.

An interesting feature is a table showing the percentage of words of Anglo-Saxon origin in diffierent books. It is compiled in the same manner and on the same scale as that in Marsh's "Lectures on the English Language." We may mention incidentally that in King James' Bible it is 93, and in the newspapers of the day 72 per cent.

The author is very happy in his illustrations, which are both numerous and copious. He retains the ancient rhetorical names, ("Synathroismus," "Synezeugmenon," for example) but adopts a new classification, which makes their character clearly apparent. The book is supplied with a good index.

THE PHILOSOPHY OF ARITHMETIC. By Edward Brooks, Ph.D. Sower, Potts & Co. Philadelphia.

To the teacher who is (as he should be) a student, this work is invaluable. Arithmetic as an art is well enough understood by the American people; but the science of numbers has been hitherto relegated to the college professor or to the lover of the abstruse and uncommon. Let teachers understand us: we do not advocate teaching children the philosophy of arithmetical operations; we believe it is more important *to do* than to reason. But we hold that the more thoroughly the teacher comprehends the fundamental principles on which all arithmetical operations are founded, the better will he instruct his pupils to perform those operations. To give a logical outline of these principles is the design of this work; and we believe the author successfully carries it out. The book is divided into five parts, besides the Introduction.

The Introduction contains a Logical Outline of Arithmetic, a brief History of the Science, the Origin of the Fundamental Operations, and an account of the early Writers on the Science.

Part First treats of the Nature of Number, of Arithmetical Language, and of Arithmetical Reasoning.

Part Second treats of Synthesis and Analysis, or the Fundamental and Derivative Operations.

Part Third treats of Comparison, including Ratio and Proportion, the Progressions, Percentage, and the Theory of Numbers.

Part Fourth treats of Fractions. both common and decimal.

Part Fifth treats of Denominate Numbers, including the Metric system.

Considerable attention is given to the "Nature of Arithmetic Reasoning." To quote the author in the preface: "The fundamental idea of the work is that arithmetic has a *triune basis;* that it is founded upon and grows out of the three processes, *Analysis*, *Synthesis*, and *Comparison*."

We believe that teachers will find the careful perusal of this book of the greatest benefit. It would be a good idea to have it in the District Library for ready reference in regard to arithmetical principles and questions which continually arise in a teacher's daily experience.

YEAR-BOOK OF EDUCATION FOR 1878. Edited by Henry Kiddle and Alexander J. Schem. New York: E. Steiger.

The issue of the Cyclopædia of Education a year or so ago, by Mr. Steiger, may be said to mark an epoch in the educational literature of the United States. Pedagogy as a science, is but little understood here; and on account of the very practical character of the American people, we are likely always to have good instructors rather than scientific educators.

The *Cyclopædia of Education* is the introduction to a new order of things—the first attempt to make known to the American teacher that there is a science of education; and the principles and methods on which pedagogics rests.

The *Year-Book of Education* before us completes the main work, "so as to obviate the need of any considerable alteration of its pages; and shows when compared with the *Cyclopædia* itself, the progress made during each succeeding year in each department treated."

Among the many important subjects fully and ably treated of in this volume, we especially notice the "Co-education of the Sexes," "Compulsory School Attendance," "Denominational Schools," "Social Economy," "Pedagogic Museums," "The Metric System," "School Savings Banks," etc., etc.

In conclusion, we are pleased to recommend this book to the favorable notice of educators. No work of the kind has ever before been issued of so comprehensive, and yet of so practical a nature. Superintendents and trustees will find it a valuable work of reference—one that will be in constant use.

PLATONIS DIALOGI. Edited by C. F. Hermann. New York: Harpers & Bros. San Francisco: Payot, Upham & Co.

M. TULLII CICERONIS TUSCULANARUM DISPUTATIONUM AD BRUTUM. *Libri Quinque.* Reinholdus Klotz. New York: Harper & Bros. San Francisco: Payot, Upham & Co.

These little books are parts of that very useful series known as "Harper's Greek and Latin Texts."

The first named consists of six dialogues of Plato: *Euthyphro*, *Apologia Socratis*, *Crito*, *Phaedo*, *Gorgias*, and *Protagoras*. The dialogues are well chosen, the text clear and neat, and the entire work of a shape and appearance highly enticing. We consider the idea which resulted in the publication of the classics in this compendious form, an excellent one.

Teachers of Greek and Latin who have a professional horror of the "pony," will be disposed to endorse this entire series heartily. The idea seems to be to collect interesting Greek and Latin texts; to arrange them in some logical order, and to present them to teacher and learner as more modern languages are presented. This idea is well carried out.

In the Latin volume, *Liber Primus* treats of DE CONTEMNENDA MORTE; *Liber Secundus*, DE TOLERANDO DOLORE; *Liber Tertius*, DE AEGRITUDINE LENIENDA; *Liber Quartus*, DE RELIQUIS ANIMI PERTURBATIONIBUS; and *Liber Quintus*, of QUI DOCET VIRTUTEM AD BEATE VIVENDUM SE IPSA ESSE CONTENTAM.

PRINCIPLES AND PRACTICE OF TEACHING. By James Johannot. New York: D. Appleton & Co., 549 and 551 Broadway. 1878.

This is a comprehensive work of 400 pages, covering the whole ground of practical teaching. The author is a lecturer of considerable ability and experience, who has given the subject much thought and close study, and in his lectures before Institutes in the Eastern States he has developed his plan of education as here displayed. His observations satisfied him that our schools are not meeting the demands of the age. Thought and activity have outstripped our teaching—our methods. The philosophy of education is not up to the standard, because psychology has made great advances. Science also has made marvelous strides, while our school curriculums plod in beaten tracks.

Basing his plan upon the most modern forms of psychology, mental philosophy, and natural science, this book is an effort to put our schools forward into the bubbling, seething current of modern thought and action.

The main subjects of discussion are, Objects of Education, The Mental Powers, Pestalozzi and his Object System, Froebel and the Kindergarten, Science in its Relations to Teaching, illustrated by Agassiz, Huxley, and Tyndal, Systems of Education, and the Text-book Topic, Physical Culture, Aesthetic Culture, Moral Culture, with a course of study covering seventy pages, embracing the above topics; also a course for ungraded schools. The work is a studied review of the whole subject of education from a modern standpoint, and is an interesting and valuable book for teachers and lecturers on education.

THE FIRST SIX BOOKS OF HOMER'S ILLIAD, with explanatory notes and references to the Grammars of Goodwin and Hadley. By James Robinson Boise, Ph. D., (Tubingen) LL.D., (University Mich.) author of "First Lessons in Greek," "Exercises in Greek Syntax," Editor of "Xenophon's Anabasis," etc. New Edition, revised and largely rewritten, with notes. Chicago: S. C. Griggs & Co. 1878.

This edition of Homer's first six songs is an attractive one. It is a compact volume of 250 pages, one half of which consists of full, well-written critical notes, giving topics in the argument, showing the thread of the story all along—peculiarities of poetic forms, dialect changes, suggestions from the best Homeric scholars and the best Lexicons, particularly Autenreith's, "one that should be in the hands of every teacher and student of Homer, in this country." The notes, in fact, are full of suggestions and explanations, and must be invaluable to the pupil, There is a map of the plain of Troy, showing the localities of the poem; and the text, from the press of Welsh, Bigelow & Co., of Cambridge, Mass., is the clearest and most beautiful we have seen in a long time. We do not desire to be a boy again exactly, but we should like very much to go through these six cantos with Mr. Boise for teacher, and such a symposium as he could summon.

Owing to the usual pressure of matter on our columns, we have been compelled to omit many book reviews. All books sent us will receive due attention. Among the best now before us are Appleton's Readers, Brooks's Arithmetics, books whose merits entitle them to an extended and favorable consideration. In our September number, the last before the meeting of the State Convention of Teachers, the review of these and other books will be published.—EDITOR JOURNAL.

Books Received.

We have received the following publications, reviews of which will appear in the September JOURNAL:

FROM PAYOT, UPHAM & CO.

LESS BLACK THAN WE'RE PAINTED. A novel, By James Payn. Harpers.

DECEIVERS EVER. A novel. By Mrs. H. Lovett Cameron. Harpers.

THE YOUTH'S HEALTH BOOK. By the author of the Bazar Books of "Health," of "Decorum," and of "The Household." Harpers' Half-Hour Series.

FROM SHELDON & CO.

THE ELEMENTS OF RHETORIC AND COMPOSITION. By Prof. D. J. Hill.

THE ELEMENTS OF BOOK-KEEPING. By Joseph H. Palmer, A.M.

THE AUGUST MONTHLIES.

The August *Appleton* is an excellent number. The principal articles are "Flora in a Garret," (illustrated) by W. H. Rideing; a fine story, "Up in the Blue Ridge," by Constance F. Woolson; "Out of London," by Julian

Hawthorne; "Voices of Westminster Abby," by Rev. Treadwell Walden, and "Otsego Leaves," by Susan Fenimore Cooper.

The July-August number of the *North American Review* contains eight able contributed articles. "The Failure of Universal Suffrage," by Francis Parkman; "International Obligations of the United States," by W. B. Lawrence; "An Advertisement for a New Religion," by "An Evolutionist"; "A Senator's Fidelity Vindicated," by Edward L. Pierce; "The Position of the Jews in America," by Rabbi G. Gottheil; "The Outlook," by Wendell Phillips; "Debtor and Creditor," by R. P. Bland, M.C., and Henry V. Poor; and "The Native Army of India," by Sir Garnet Wolseley. Every number of this review is worthy of the most careful reading and study.

Harper's for August is a magnificent number. We are much pleased to see that the Harpers are not content to rest on the past reputation of the *Monthly*, but are making such improvements as will make it equal to the best of contemporary magazines in every particular. We make these remarks, especially, *apropos* of the illustrations, which are numerous and lovely. Among many excellent articles, we can mention only a few: "The Golden Age of Engraving"; "The White Sulphur Springs"; "An Old-Fashioned Spa"; "Birds and Plumage"; and "A Glimpse of Nature from My Veranda." These are all illustrated.

Littell's Living Age is a great boon to the American reader whose means do not permit a general and very expensive subscription to European magazines. The leading articles, those of the greatest and most striking interest, are selected and here reprinted for the American reader at a very moderate cost. Boston is the place of publication of this magazine.

The contents of the August number of *Lippincott's Magazine* are both interesting and appropriate. The most noticeable articles are "Along the Danube," by Edward King; "The Paris Exposition of 1878," by Edward H. Knight; an excellent article, especially valuable to teachers, "Musical Notation," by Mrs. Marie Howland; and "The British Soldier," by H. James, Jr.

The special attractions of the August *Atlantic* are Henry James's new serial, "The Europeans"; "Moonshine, a Burletta in one act," by Thomas Bailey Aldrich; an excellent short story, "One too Many," by E. W. Olney; "The Moolid of the Prophet," by Charles Warren Stoddard; "John Bull," by Richard Grant White; and "New England Women," by M. S. W. S. The poetry is of the usual high order which distinguishes this monthly.

We never receive a copy of the *Independent* or the *Christian Union* without a feeling of astonishment that so much reading matter, of such superior quality, and by men and women, eminent in their spheres, can be furnished week after week, month after month, and year in and year out, at so low a rate. In these religious papers we get nothing that is namby-pamby in literature, and only what is truly liberal and progressive in religious thought.

Harper's Weekly deserves a word of commendation from every American editor, whenever opportunity offers. It is truly and essentially our journal of civilization. The pencil of Nast does efficient work in the conservation of political and social honesty, and the pen of Curtis impresses the same lessons yet more deeply on the mind.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR PRIMARY SCHOOL WORK. Edited by Mrs. H. M. SOLOMONS. [Bush St. Primary School, S. F.]

SUGGESTIONS FOR HIGH SCHOOL WORK.

Class Drill in Algebra or Arithmetic.

One method for conducting class recitations in algebra or arithmetic is as follows:

First, explain thoroughly such definitions, examples, or other points in the lesson given in the text-book, as any one of the class may desire to have explained. Encourage the class to ask for explanations, by showing them how important it is to understand every topic well. Explanations by the teacher are far more valuable to the

pupil after the pupil has found the difficult points for himself, than if given before.

Suppose that all explanations asked for have been made, and the class is now ready for a test examination on the lesson for the day. Let the teacher, from examples like those in the text-book, but prepared by himself, read a question for the class to solve. After sufficient time has been given, have all stand who think they have a correct answer. Call upon some one, not the best in the class, to read his answer. As soon as this answer is read, have the reader and all that agree with him take their seats. Of those that remain standing, if there are any, let another read, and those that agree be seated; and continue in this way until all are seated. Read the correct answer, and have those stand who have the same answer. Send those who have not a correct answer to the blackboard, to work the example where you can see what errors are made. This test question having been worked and understood by all, try others in the same way until the recitation time has passed.

C B. Towle.

Vallejo High School.

SUGGESTIONS FOR GRAMMAR SCHOOL WORK.

Spelling.

It is a conceded point that all the words in the reading lessons should be spelled perfectly by each of the pupils, but would it not be a very fine exercise for the teacher each day to select five words from every-day life, as articles of dress, articles of food, etc., and have the pupils write them in a book kept for that purpose, and let the class have *spelling matches* occasionally, using these words? The teacher might insist upon, and encourage the pupils to bring such words as they might think important, and such as they search out at home from advertisements in the daily or weekly papers. This method would lead to considerable investigation on the part of the pupils, a thing quite desirable in school life. Let the teacher see that every thing is to be done in perfect system or order. An examination of the books, papers, drawings, etc., is as important as an examination of any other kind.

SUGGESTIONS FOR PRIMARY SCHOOL WORK.

Classification.

It cannot be denied that a teacher can do much better by a class if they are all of one grade, and can receive the same instruction. It is equally undeniable that she cannot do them justice if she have them all in one division, and keep all on the same work, if their minds be not all at nearly the same stage of development. To divide up a class too much, is considered a detriment, and as our schools are pretty well graded, it is generally thought unnecessary. It must be conceded, however, that it is difficult to find classes of fifty and sixty children, each properly prepared and capable of advancing satisfactorily together. In primary schools, especially, and in the lowest grades more especially, is this the case, since the farther advanced pupils are, the more readily can diligence be made to keep pace with greater capacity, and industry to make up for lost time and missed opportunity. We teach upon the principle of the greatest good to the greatest number; therefore, we feel that when we give class instruction, if the majority of the pupils have profited by the work, and the class shows a good average percentage, we consider our duty done. But is it? What if our good average is found because some of the pupils have obtained a *very high* per cent., while many have obtained only medium, and quite a number very low? Have we really done our duty to these

last? (who will probably be obliged to spend another year in the grade).

Suppose we take for our motto *the greatest possible good to all.* Suppose that when the point is reached where the bright and the diligent begin to distance the dull, the indolent, and the playful, and these last begin to lose the little interest they have been taking, because the work is now beyond them, suppose then that we separate the latter from the former, and proceed a little more slowly with them, give them work which they can and therefore will perform, instead of that which they cannot possibly do.

Can we do this? Is there time? Certainly. It takes no longer to give fifteen minutes' instruction to two divisions of twenty-five pupils each, than to give half an hour to one of fifty. We hold that much more satisfactory work can be done in this way, even if carried out still further and more divisions made, and even if it does take more time (for less may be given to the more advanced; they can *afford* to spare it); and the result would be that although we might not have any children who would receive nearly 100 per cent., many would get high, and *all* would be promoted.

Now we do not mean to advocate cutting up all classes into several divisions; but we deprecate the prejudice against having more than one or two in low grades. And we think that very careful sub-classification in, say the two eighth grades, would go far towards making the higher grades more even. For instance, we receive at the beginning of the year from fifty to sixty children who have never been to school. A few, perhaps, have been taught a little at home, but we will take for granted that all alike know nothing. Some are bright, intelligent children six years of age, some are of average intellect and inclined to be industrious and attentive, others are dull and slow, and others again are bright enough, but lazy or playful, and perhaps quite a number are but five years of age (we have been assured that they are six, and of course we are bound to believe their parents). It is safe to assume that nearly half of these children will be able to satisfactorily do the work of the two eighth grades during the year, and all the rest ought to complete the low eighth grade work. We begin with all together, and pursuing the foregoing plan, after a time have almost as many divisions as varieties of children. But no matter, we will, toward the close of the year, have them together again in two divisions, and all will be promoted; one division to the seventh, the other to the high eighth. We acknowledge that this is considerable work, but the children have a *right* to be brought thus far, and we ought to accomplish it. We hold, however, that it is by this method of classification only that the above result can be obtained; for by adhering strictly to the plan of two divisions only, quite a number are left to go over the low eighth grade work the following year.

Another great improvement can be made in eighth grade work by careful classification, which will be sensibly felt in the next three higher grades. Most schools have at least two low eighth grade classes, each of which will have in December one division of from twenty to thirty nicely advanced pupils. Let them exchange so that one teacher will have the two first divisions as a high eighth grade, which being composed of the best intellects and most diligent can be kept in one division, and taken thoroughly through high eighth grade work by the end of the year. The others will all have finished the first year's course by that time, when we have as a result—from two low eighth grades one seventh and one high eighth grade, instead, as is so often the case, ten to twenty, seventh grade pupils, one class high eighth and all the others left to spend another entire year in the low eighth grade.

Printing in the Low-Eighth Grade.

MR. EDITOR: In reference to the printing of words by pupils of the low-eighth grades, I think your correspondent in the June number of the JOURNAL gives the matter an exagerated importance. His *additional suggestions*, as to the plan to be pursued with pupils of this grade are substantially the same as those set forth in the May number of the JOURNAL, with the exception of his *argument* in favor of printing.

I cannot see why printing a word will give a child a clearer "eye concept" of the face of the word than writing it: both are mechanical operations. But admitting that printing the word calls the attention of the child to the detailed formation of the arbitrary characters representing the sounds composing the word, would not writing the word attain the same result, though forming it with a different set of characters? We all know, in practice, if we are in doubt as to the spelling of a familiar word, and wish to present the same to the eye for verification from the mental picture in the mind, we *write* the word. Neither writing nor printing of words is essential to a *clear eye concept* of the same. In writing or printing a word the hand follows the eye—the hand only traces the picture that is already formed in the mind.

Neither does printing or writing have the same office as map-drawing or the drawing of geometrical figures. Properly constructed maps, geometrical figures, or hieroglyphical inscriptions are intelligible to the unlettered boor, while printed or written words are an enigma to him, for the simple reason that the former are representations or copies in the miniature of the objects themselves, described, while the latter are to him a collection of unmeaning characters. The former can be understood by all nations, tribes, and tongues, while the latter have a significance only to those who possess a *key* to the alphabet, from which the letters composing the aforementioned words are taken. We teach writing and drawing in our public schools with prospective practical results in view, and I think a teacher in our public schools cannot be over zealous in his efforts to make his teaching conducive of practical results. That plan of instruction for the masses, which aims at the imparting of only such knowledge or skill as is requisite to the proper performance of the practical duties of life, devolving upon each one according to his capacity, should be the *ne plus ultra* of all school systems for the general public. S. A. SMITH.

Downieville, Cal.

EDITOR PRIMARY DEPARTMENT SCHOOL AND HOME JOURNAL: The invitation to discuss the "Grube System" induces me to offer a few remarks concerning it. Experience, although rather brief, has shown me that the combination of figures, put before the scholar's eye in every possible way cannot fail to make an impression on the scholar's mind. But this alone is not sufficient; slate and blackboard work must be aided by means of objects and frequent mental drill.

The child may comprehend the relative value of figures and signs, and still not grasp them individually. This is especially the case with times (×) and divided by (÷), for they are great bugbears for little ones. Measuring, according to Grube's System, is only too often done in a mechanical way. Puzzled faces and questioning in a painful voice, indicates the necessity of presenting these aforesaid combinations in so many different forms, and illustrating them in such various ways that the child will finally have a clear and thorough conception of figures, both relatively and individually. A. I. D.

THE PACIFIC

SCHOOL AND HOME

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THE INTRODUCTION OF WESTERN LEARNING INTO JAPAN.

BY PROF. M. M. SCOTT.

[Imperial University, Tokio, Japan.]

Japan was first made known to Europe through the celebrated Venetian traveler, Marco Polo, about the middle of the thirteenth century. At that time all commercial transactions with India and China were carried on overland, by way of the Red Sea. Young Polo, in company with his father and uncle, made a trip to China, and penetrated as far as the capital. About this time the great Kubla Khan was the emperor, and taking a fancy to the young Venetian, persuaded him to remain at the Chinese court. After sojourning for many years at the Chinese capital, in the confidential service of the Khan, and paving the way for commercial advantages to his fellow countrymen, Polo returned to his native city, then at war. He took command of a ship, was captured, and while in prison wrote an account of his sojourn and travels in China, which was so wonderful, and the details supposed to be so exaggerated, that his countrymen gave him the nick-name of "Messer Marco Millione." In his book, the first mention is made of Japan under the name of Zipangu. The name Japan, by the way, is a good illustration of evolution in language. The Japanese themselves call their country Nĭp-pōn ; this in Chinese became Zipangu, and then in the Dutch, Yopan, and finally, in English it attained its full develpoment in a dissyllable which no uninitiated Japanese would ever think aimed at his country.

It may interest some of the readers of the JOURNAL to know that Columbus was really in search for this same Zipangu when he discovered America. In a very interesting and learned address delivered before the German-Asiatic Society of Japan some three or four years ago, by the German Minister, Von Brandt, several extracts of letters were read, setting forth views of the then most learned geographer in Italy, the celebrated Toscanelli. One of these extracts, written by Toscanelli, in 1474, tells Columbus that he, Columbus, will not find the voyage a very long one, as the continent of Asia extended to the east, beyond the 180° of east longitude. In this letter, the learned geographer also tells Columbus that in sailing west, he will first find the fabulous island of Atlantis, and next Zipangu, the country spoken of by Marco Polo, and finally he will have the exquisite pleasure of beholding the famous Cathay.

In his book, Polo merely mentions Japan as a country consisting entirely of islands, lying at a considerable distance from the main continent of Asia; and abounding in gold; indeed, so abundant was gold thought to be that all the temples were represented as roofed with the coveted metal. After the discovery of America, and the passage around the cape of Good Hope followed, the spirit of discovery and adventure siezed all the maritime nations of Europe; foremost among these old knights and voyagers of the ocean were Portuguese and Spaniards. After discovering some of the East Indies, and being stimulated by the accounts of the richness of the country given by Polo, Mendez Pinto, a bold and unscrupulous Portuguese, in command, as some accounts say, of a piratical craft, was the first European to behold "Dăi Nĭp-pŏn," (The Land of Rising Sun) in the year 1543. In rapid succession, after the discovery, followed ship after ship of the Pŏrtuguese and Spaniards, at that time swarming in the vicinity of the East Indies. As was usual in these days, the cross soon followed the adventurer into Japan. Xavier, since canonized as St. Francis, a zealous Jesuit, arrived in Japan in 1553. In a short time many other missionaries followed, of various sects, and from the quarrels and schisms among these priests, the final expulsion of foreigners, and the exclusion of the country from all foreign intercourse, is to be accounted for. Xavier seems to have been the St. Paul of his time. Learned, bold, and zealous, he shrank from no hardship which, to him, seemed likely to advance the cause of his Divine Master. At one time he took a journey of several hundred miles as a groom, in order to be able to preach to the emperor himself. Many stories of miracles are still told among the Japanese, which this good man performed. He was gifted with the power of tongues, speaking to the Japanese in their various dialects, even as soon as he entered the different provinces. One thing is certain, and that is the fact that had the successors of Xavier been as prudent and as thoroughly in earnest and unselfish as he, Japan would have been in friendly intercourse with other nations 300 years earlier than she was. To make a long story short, as I have already said, the priests of the two nations, and more particularly of the different sects, quarreled, became disobedient to the government, their converts, who were numbered by hundreds of thousands, followed the example of their leaders, and finally, Hidetada, the grandson of the great Iyeyasu, issued an order expelling all the foreign priests from the country, and such as would not go were to be crucified. The converts were dealt with in as summary a manner. They had the choice of retraction or death. Thus ended in blood what had so auspiciously begun.

Taking advantage of these circumstances, the Dutch, then disputing with the

Portuguese and Spanish, the supremacy of the sea, sent an expedition to Nagasaki, a southern port of Japan, were received by the Japanese, though not without suspicion, in lieu of what had happened with the other "Christians," and thereafter, until the treaty made with Commodore Perry in 1854, enjoyed less exclusive privileges granted to any "outside barbarian."

Notwithstanding the humiliating exactions demanded by the Japanese government of the Dutch, in consideration of driving a thriving trade, the phlegmatic, and not over-sensitive Dutchmen complied with all requirements. They were permitted to establish a small factory on the little island of Deshima, in the beautiful harbor of Nagasaki. All the Dutch employed in the factory were compelled to remain on this little piece of *terra firma*, or, if permitted now and then to go to the mainland for a walk, it was always under a strong guard. Two ships a year, bringing drugs, clothes and such other merchandise as was readily exchangable at twenty or thirty times original cost, were permitted to land at Nagasaki. What a weary and monotonous life this must have been! Even at the present day, the writer, in passing Japanese book-stores, sometimes sees a picture, by Hokusai, the Hogarth of Japanese art, representing the weary Hollander, pipe in mouth, his face turned seaward, patiently awaiting the half-yearly ship beating against the monsoon to her moorings near the factory. Still, as at that time in Japan, gold, quantity for quantity, was worth only four times as much as silver, I think most of us could have stood isolation for a brief period considering the profits.

I have written thus at length on the early history of the country, in order to give such of my fellow-teachers as have not studied its history, an outline of its early relations with foreign countries. It has been a theme of common remark among foreigners living in Japan, how a people so eager in the pursuit of knowledge, so quick to take hold of, and to assimilate any thing of benefit to themselves, could have shut themselves up from the world's progress as they did, for so long a time. A selfish and despotic government was the cause. It was death for him who left the country to return. There was no less a penalty for the unfortunate ship-builder who should construct a vessel other than after a plan prescribed by government—a plan which was so restricted that the junks made after it could not encounter the ocean.

From the Dutch physicians at Nagasaki the Japanese learned something of Western medicines. There were also a few books on engineering and gunnery translated, but owing to the absence of scientific words in the Japanese language, very few other works on science were translated. In this condition was Japan found in 1854, when the gallant, but gentle old Commodore Perry entered the bay of Yedo.

A DIRGE.

BY M. L.

"A teacher?" Yes! the licence's all *en règle*,
Certificate secured in legal form;
The endorsement showing standing in the branches
Up to State Board Examination's norm.

"Experience?" *Ad nauseam* I have bought it.
The County Board will please accept my thanks:
Composed of pedagogues, all firmly standing
By the resolve "to thin the teachers' ranks."

"And looking for a school?" Precisely guessed, sir.
Trustees of schools I've made my special aim;
But failing to enslave more than the odd one,
Has made my search thus far a losing game.

Still, plenty of "experience" must requite me:
The system—I now truly understand—
Holds to the tenet: *Manus manum fricat*,
Where Charity and Pension join the hand.

WORD ANALYSIS.

BY PHILIP PRIOR, M.A.

The subject of etymology must early have engaged the attention of educators, for we find Dean Swift during the last century severely attacking those who were endeavoring to derive our language from the Latin and Greek. In a humorous article, he seeks to show that instead of the English being a derived language, it is, in fact, the stock from which the Greek and Latin had their origin. We will give a few examples to show the plausibility of his views. "Aristotle was a Peripatetic Philosopher, who used to instruct his scholars while he was walking. When the lads were come, he would *arise to tell* them what he thought proper, and was therefore called *Arise to tell*. But succeeding ages, who understood not this etymology, have by an absurd change, made it *Aristotle*. Aristophanes was a Greek comedian, full of levity, and gave himself too much freedom; which made a graver people not scruple to say that he had a great deal of *airy stuff in his writings;* and these words, often repeated, made succeeding ages denominate him Aristophanes. Alexander the Great was very fond of eggs roasted in hot ashes. As soon as his cooks heard he was come to dinner or supper, they called aloud to their under-officers: *All eggs under the grate;* which repeated every day at noon and evening, made strangers think it was that prince's real name, and therefore gave him no other; and posterity has ever since been under the same delusion. Among these ancients, fortune-telling was a very beggarly trade. The professors lay upon straw, and their cabins were covered with the same material; whence, every one who followed that mystery was called *A straw lodger*, or a lodger in straw; but in the new-fangled way of spelling—astrologer." After giving quite a number of instances of similar character with the above, he concludes: "Thus I have manifestly proved, that the Greeks and Romans spoke the language we now do in England; which is an honor to our country that I thought proper to set in a true light, and yet has not been done, as I have heard, by any other writer."

All efforts at a successful analysis of our language seem to have resulted in failure, until about fifty years ago. At this time, Mr. Salem Town, who was principal of Granville Academy, conceived the idea that the same plan might be pursued in analyzing English words, which was employed in teaching Latin and Greek. After several years of severe labor, and constant experiment in the school-room, he published the book which has not only marked him as a great thinker, but has been the commencement of a new era in the study of the English language. Since then there have been several text-books published on the same subject, but none, we think, in all respects, superior to this same "Town's Analysis." He found upon close inspection that the words in common use were mostly of Saxon origin, and the remainder were derivatives of the Latin and Greek and a few other languages. His first endeavor, therefore, was to seek to classify them; and this he accomplished by arranging them under these three heads. He saw, furthermore, that although our dictionaries contained many thousand words, they could be reduced to a comparatively smaller number, which, by the addition of prefixes or suffixes, or both, could be made to express various shades of meaning. His next step, then, was to ascertain what these prefixes and suffixes were, and in this he was eminently successful. After settling upon their signification, he published the book, which will always remain a standard upon the subject: namely—Town's Analysis.

"Butler's Etymological Speller" made its appearance about the same time with Mr. Town's work. This was an English publication brought out in London in 1829. "The Scholar's Companion," taking Butler as a model, was published in Philadelphia in 1835. In 1845 Lynd's Etymology was given to the public, and for a time seemed to enjoy considerable favor; but is now scarcely used. Some six years ago, Prof. Swinton, of the State University, wrote an excellent treatise on the same subject. This book is now in use in our public schools, and is meeting with encomiums everywhere. He seems to have taken Mr. Town as his guide, and although he has published but few things which were not contained in Town's Analysis; yet these, among which are the exercises in fine print, are the distinguishing feature of the book.

It has so frequently been stated, that it has at length come to be accepted as a fact, that, in order to thoroughly comprehend the English, it is necessary to have a knowledge of several other languages, and preëminently among these, of the Latin and Greek. To some extent we are prepared to accept the proposition as true, but the time which many persons are able to give to study is so limited that it is impossible for them to take up the dead languages, as they are called. Hence an easier method of arriving at the meaning of many of the words in use seems to be demanded. What shall constitute this easier method? From close examination it has been found that the hundred thousand words contained in our largest dictionaries, can be reduced to a few thousand primitives. If their meanings, and those of a few Saxon, Latin, and Greek prefixes and suffixes are known, we have the key to the entire language. It may, however, be urged that some difficulty might be experienced on the appearance of any new word. This objection can be met by stating that the newspapers are generally very generous at such a time in furnishing the meaning of every newly coined word. Let, then, all such persons who have not had the opportunity to acquire a knowledge of Latin and Greek, make themselves conversant with Swinton's or Town's Analysis, and they will experience but little difficulty in ascertaining the meaning of almost every word in the English language.

Our language is fast attaining the credit of being the most flexible, as well as the most expressive. By it, not only can every thought of the mind and every emotion of the heart be expressed, but even every shade of thought can find its expression in our noble mother tongue. In this it resembles the German, but is in many respects superior to it. It is considered as the language of commerce, and is used more extensively than any other on the face of the globe, and threatens, in course of time, to become the universal language. Hence the necessity of a familiar acquaintance with its structure, and with the laws of its formation.

The study of Analysis being, then, acknowledged as highly important, the question naturally arises, how can it best be learned? There are two ways which may be pursued with profit. First—let the words be taken up just as they occur in the lesson, and separated into their component parts. This is called the analytic method. Secondly—let the elements, the root, the prefix and suffix be combined, and the meaning of the derivative be thus elicited. To illustrate more clearly our idea let us take a sentence and proceed with it according to the first method: "Geography is a description of the earth's surface." "Geography" is composed of two Greek words, *ge*, meaning the earth, and *graphein*, to write; hence, the word geography means writing about the earth. "Is" is of Saxon origin. "A" is of Saxon origin. "Description" is composed of three parts: a

root, a prefix, and a suffix. The root, *script*, comes from the Latin *scribo*, which means, "I write." The prefix, *de*, means "of," and the suffix, *ion*, means "the act of," and "the state of," "the thing that." Therefore, "description" means "the act of," "the state of," or "the thing that writes of." "Of" is of Saxon origin. "The" is of Saxon origin. "Earth's" is of Saxon origin. The apostrophe between the *h* and *s* supplies the place of a suppressed *e*. "Surface" is composed of a root, *facies*, meaning figure, and the prefix, *super*, above, both of Latin origin. After this sentence has thus been analyzed, it would be well for the scholar to give other words containing the termination *graphy*. These he can easily find, by looking through the small dictionary; in fact, he will very likely know many of them already, and will be only too pleased to give them. He should also be required to give words with the root *scribe*, and others with the prefix *super* or *sur*, and the suffix *ion*. In reading, every word that can thus be easily analyzed, should be made the subject of discussion. It will require but little time, and afford a great deal of amusement as well as satisfaction to the pupil.

The second method, the synthetic, consists in having the pupils memorize the prefixes and suffixes, and then taking some English, Latin, or Greek root, and combining it with them, form such derivatives as may be required. For the purpose of exemplifying, let us take the root "potent," having power, and the prefixes *im*, *omni*, and *pleni*. Combining *im* and *potent*, we have "impotent," which means "having no power." *Omni* and *potent* form the word "omnipotent," having all power. And *pleni* combined with *potent* forms the word "plenipotent," having full power. Either method may be adopted, according to circumstances, but we are inclined to the belief that it would be better to commence with the synthetic. It requires but little time to commit to memory the few prefixes and suffixes contained in the text-books, and then the pupil will be prepared to analyze most of the words contained in his Reader.

Another exercise which always excites great interest is the study of words. We will give an exercise of this kind. The class has been called upon to recite their lesson in analysis. After this is finished, and it is generally well done, you suddenly ask, "Can any one in the class tell me the meaning of the word 'sincere?'" "True," is the quick reply. "Now, can any one give me the derivation of the word?" One hand, perhaps, is held up. "Well, what is it?" "It is derived from the word *sine* and *cera*. *Sine* means without, and *cera*, wax; hence, sincere means "without wax." "Correct; now, who can tell how this word has come to mean true, unadulterated and pure?" It may be no one can tell; if so, you can easily engage the attention of the class, while you inform them that the Romans were in the habit of filling up holes in furniture with wax, so as to make it appear new and sound. When parties purchased an article, therefore, they would always ask first, "Is it without wax?" meaning thereby is it without blemish. From this, the term has come to mean pure, unadulterated, and true. In the same way we may dispose of the words, "Salary," "Lunatic," "Tantalize," and many others.

But it may be said, This will require some labor on the part of the teacher. Admitted. When we come to consider, however, the pleasure which such a course affords both teacher and pupil, it surely must be regarded as time well spent. The analytical study of the English language opens up such a vast field for inquiry, that we must look upon it as one of the most important studies at present pursued in our public schools. We do not think, however, that it obtains the rank to which its usefulness entitles it. It is a portion of the

study called grammar, and should at least receive as much attention as is generally given to that branch in most schools. We sincerely hope the time will come when its importance will be generally recognized.

SCHOOL ETHICS FOR MODERN STATESMEN.

BY JOHN M. EDDY.
[Humboldt County, Cal.]

No. II.

Having established the fact that the first and principal element of education is the power to read, wedded to a taste for miscellaneous reading, it is our next duty to examine into and report upon those special branches of study that are a direct consequence of extensive reading, and contribute most to the *tout ensemble* of a well-informed man. Having taught the child to read, and incited him to a desire for perusing current literature, it will be borne in mind that the paramount object of all education is attained. The power is now in his possession, and what follows will serve only to direct that, so that it may be of use to himself and his fellow men. No axiom relating to society is truer than this, that diligent readers make good citizens; and whatever crotchet or hobby a teacher may entertain, they should all be supplanted or modified by this important truth. We dwell upon this theme because it needs to be impressed upon the mind of every educator.

To distinguish between the relative values of other branches of information, after the power to read has been acquired, would require a prolonged investigation, which we at present are not prepared to make, and therefore, without ascribing a reason will accord the precedence to a knowledge of the English language. By this we mean a knowledge of the words we use; their construction, weight measure, and appropriate use. This is an important matter, as it is inalienably associated with all our relations and intercourse with fellow-beings. The well-informed man not only knows what to say, but how to say it. We must cultivate in the child a constant habit of correct and logical expression. This, perhaps, does not depend entirely upon school-room training, but the school will have great influence, and if efforts in the direction of clear and accurate expression are persisted in, will eventually revolutionize the most inelegant speech. Association is the great teacher in this matter, and it should be the constant care of both teacher and parent to use no improper language, nor suffer its use in their presence. The school, the play-ground and the home circle should be considered a constant recitation of the language-class, and every associate, be he teacher, parent, or pupil, should be a prompter to correct the language of his companions. In this, as in most things, a good example and a free play of imitation will accomplish more during one term than technical rules and abstract laws would effect in a generation!

The study of language begins in our infancy. It precedes reading in point of time, but not in importance. It accompanies reading through life. Who has ever mastered the English language? It is an inexhaustible mine from which we may coin expression for three score years and ten, then find that the bullion is in excess of the currency. Language affects all our relations to the world at large. It is the science of intellectual intercourse. It cannot be too assiduously and persistently studied, for its variations are so intricate, its lines of divergence so narrow, that it requires the closest scrutiny to sift the exact idea from the written formula. We once heard a distinguished jurist say that his early education was in the wrong direction, and if he were compelled to read law again he should look for most of it in his

lexicon instead of his Blackstone. Perhaps no other subject affords such an abundant harvest of error, misconception, and litigation, as illogical and obscure expression. Scarcely a law on our statute books but will admit of various constructions. Is this due to a vagueness of ideas among our law-makers, or to an ignorance of their mother tongue? Mr. Herbert Spencer, in his "Philosophy of Style," says: "The relative goodness of any two modes of expressing an idea may be determined by observing which requires the shortest process of thought for its comprehension." It would be well for not only legislators, but teachers and all others who use the English language, to accept this as the standard of logic, and express themselves accordingly.

Language, then, is a necessity to a gregarious animal, such as a man, and this necessarily implies its cultivation and use. But here let us protest against the confounding of language with that bundle of absurdities miscalled *English* grammar. Neither the true beauties of the English language nor its correct use can be found in the text-books bearing the name of "grammar." These books may be of use in studying the construction of the Latin language, or to the student of philology, but we have serious doubts of their efficacy in our common schools.

Language, as we have defined it, will naturally include composition, word-defining, and orthography. The first and last of these will be taught the child early, almost as soon as reading, and the teaching of them must be persisted in until he becomes tolerably proficient. Word-forms, or spelling, will be taught in conjunction with reading and writing. In regard to text-books for spelling, we would be more conservative than with the grammar, and tolerate them. For, although we believe that spelling *may* be better taught in another way, that it *will* be better taught we are doubtful. Word-defining will come later, and in smaller doses. This latter not being one of the exact sciences, it will not do to encourage too early a fixity of opinion.

In training children to occupy a respectable position in an advanced order of citizenship we must not omit one element of success which is too generally ignored, namely, sectional and local knowledge. It is not enough that we are acquainted with the fact that this is one great nation, administered throughout on great general principles, but we must also become aware of the no less important fact that one of these principles is decentralization. In order to render the succeeding generation of citizens law-sustaining and progressive, it is essential that they be instructed in whatever pertains to their own section or State. Every well-informed man is acquainted with the history, geography and resources of his own State and county. Every child should be instructed in these and such other matters of local importance as may conduce to his general intelligence. Indeed, it is for the interest of a commonwealth to insist upon this species of instruction; for, if a person be unacquainted with the advantages of his own section, he will not form so great an attachment toward it, and may be more easily induced to leave it, and thus the State is bereft of his assistance in its development. One of the greatest annoyances that we have to contend with in attempts at general education is the unstable character of the population, and if by any means we can develop a love and admiration for home and home interests, and by so doing establish a permanent social order and constant school patronage, we will have attained an end worthy of special seeking. That love for ancestral acres and sectional pride which forms so praiseworthy an element of the English character, is totally wanting in the average Western American—and more is the pity. We do not intend to convey the

idea that one section of our land should be exalted at the expense of others, but we mean to say that all should be trained to a just pride of those excellencies which their own section does possess, and a deeper interest in the affairs of that section than we accord to other localities. The inhabitants of Georgia should know Michigan generally and Georgia specially, and *vice versa*.

THE COSMICAL FUTURE.

Among the most recent revelations of powerful modern instruments is that of a dark sun, whose existence was at first suspected and subsequently demonstrated by Bessel, and which was actually seen by two observers—Messrs. Clark and Pond—in 1862. It is known to astronomers as the companion of Sirius, the Dog Star. Its mass is nearly seven times that of our sun, but scarcely a ray of light does it reflect, and only once, we believe, has mortal eye aided by the most perfect of telescopes, beheld its mysterious sphere. The existence of another such body has been demonstrated in the apparent neighborhood of the star Procyon, but the dark interstellar spaces still keep its secret veiled from finite vision. Over against these meager data concerning "dark suns," known but unseen, may be set the several stars, unknown before, which have suddenly blazed into existence and taken their places in the heavens.

There are, then, all around us, wheeling through their orbits, vast invisible worlds which may at any time, and which have in several known instances almost within the memory of man, burst into actual combustion. It is certainly an interesting problem for astronomers to invent hypotheses, and calculate, so far as may be from known data, the possible history, influence, and destiny of these mighty elements in our sidereal family.

Several years ago the New York *World* published one of those exceedingly clever, half jocose, half scientific articles for which it is famous, setting forth a theory to the effect that since the number of atoms in the universe is necessarily limited although it may be inconceivably great, there must come a time when they will have passed through all possible permutations and will re-arrange themselves precisely as they were yesterday, as they are to-day, and as they will be to-morrow. Of course it is only the proviso of limitation that lends the argument any plausibility. Assuming infinity of matter, space and time, the theory of recurrent permutation falls to pieces, as its author, an imaginary Dr. Slavonsky, was well aware. This ingenious hypothesis argues in favor of a periodicity in the sidereal system which now receives serious professional indorsement from Herr Loschmidt, a well-known European savant.

In a summary published in *Nature* his views are set forth. Starting with the theories of Sir W. Thompson and Clasius, which are almost identical, and were made public simultaneously, Herr Loschmidt reaches an independent and different conclusion. The theories referred to are based on the assumption that planets will, sooner or later, fall in upon their respective suns; that these suns will in turn rush together until at last all the particles in the universe will aggregate into huge masses, which, however separated by incalculable distances, must rush blazing toward one another, and, slowly cooling after the shock of contact, become the sole material in the void of infinite darkness. Herr Loschmidt, on the contrary, while admitting a probable period of death after the earth and her companion worlds shall have been consumed in the sun that now gives them life, holds that when once the surface of the sun shall have cooled, its interior will begin to store up and develop radiant heat from surrounding space. It is calculated from

known data that an amount of heat would thus be generated, which would reduce the interior of the mass to a gaseous state, and eventually burst the surrounding crust into fragments, whence, it may be assumed, would be evolved new worlds and systems, succeeding one another in death and life to all eternity.

The hypothetical Dr. Slavonsky, therefore, and the actual Herr Loschmidt reach conclusions not so very dissimilar, and the clever journalist has a tangible claim for priority of invention.

The utter inability of human intelligence to grasp the bare ideas of infinity and eternity is a sufficient guarantee against any harm being done by such speculation, mysteriously attractive as they are for many minds. To the Christian the idea of death, universal, absolute and eternal, is repellent while the theory of periodical death and resurrection as regards the material universe certainly strengthens the "argument from design." Whatever the future may have in store for the material universe, the spiritual part is not in the least affected thereby. That, with all the infinite and all the eternal, is far beyond the reach of scientific investigation.—*From The Christian Union.*

HYGIENE OF THE SCHOOLS.

BY DR. H. M. FISKE.

[An essay read before the Training Class for Inexperienced Teachers, San Francisco.]

I.

Sunlight is of as much value in a schoolroom as order and propriety. It is important, then, that you keep your rooms well lighted. Not so much so as would produce inebriety in the visual functions, and destroy that which all ought to seek to create—cheerfulness, animation, and warmth. Sunlight is one of the glories of nature—a necessity in the growth of mind as well as body. Sophocles tells of a spider which was kept enclosed in a leather stocking for several years, and when released his body was pearly white. Demosthenes, in one of his early declamations, tells us that the power of the sun is

MIGHTIER THAN THE GODS.

It improves the intellect, enlarges the capacity of the brain by the beauties thrown on its horoscope, by the emerald rays of its divinity, and pours its fires through the mentalities of the universe. What was true in the time of the old Grecian orator is equally so to-day. There is a steadiness and an impetus about a cheerful and well-lighted room that makes the thoughts come more readily, the lessons more thoroughly comprehended, and awakens in the mentality the fire and glory of renewed activity. It tells the little wanderer from home in search of the truths of science that those beautiful pencils with their many diamond colors are mines of wealth and glories of antiquity, which are enlarged and deepened by their very contact with his individuality. Cheerfulness is in very contrast with selfishness and obstinacy. The one is a product of well-lighted rooms, cheerful firesides, and well-requited love. The other is the offspring of cold, dampness, darkness, and oblivion—oblivion of the purer and nobler impulses of a child's nature.

Then have your rooms well lighted, though never with the direct rays penetrating unobstructed the room, and falling upon the children's heads, and in direct conflict with the current angle of vision, but in such intensity as the laws of health and your own judgment dictate. In midsummer small screens are admirable, even if they are temporarily made of simple tissue paper, which can easily be pinned up if there are no other conveniences. Better that they were always green in color, and of the cheapest, lightest kind of material and tint, so that the rays of light

penetrating shall pour through the room in gentle waves, refreshing and invigorating to the mental tissue, and thus reflected strengthening the retina and optic nerve. Waves of light in the school-room should always be of this character. The relief to the eye is so great that after a few trials the teacher will have nothing else.

A PLEA FOR CLEANLINESS.

Cleanliness is next to godliness, and this text may be preached all day in any school-room—both by precept and example. Take any number of the average children and you will find them more or less filthy in their habits or persons. This arises partly from habit and partly from home influence. In a large majority of cases these can be easily and readily corrected by yourselves with a few words of admonition, or a little practical examination. All persons, both before and after meals should take the precaution to brush the mouth and teeth with a mild solution of soap and water; and this, when the breath is offensive and the tongue heavily coated, will effectually remove the foul secretions and the remnants of food between the teeth, and to such an extent that an improved condition of the breath, mouth and face is immediately perceptible. A few words of advice to pupils on this subject will almost invariably produce desirable results. Ink spots—ugly and unclean looking things wherever found, no matter whether on clothes, desks or the floor of the room—are very easily removed by the application of a few drops of a solution of oxalic or carbolic acid, rubbed in with a soft brush or sponge. How much better for the teacher to direct attention to these facts, and remove them immediately, than to let them remain, and thus blot and blur the tastes and fancies of the more fastidious and cleanly. The habit of wearing thick clothing, such as shawls or cloaks in the class-room is to be deprecated. They are prejudicial to health as well as to cleanliness. Bad breaths are almost sure to be cured by occasionally chewing a little charcoal, and the bad effluvia arising from the feet are easily removed by pouring into the stocking or shoe a little rose water, in which has been suspended a few grains of muriate of ammonia and carbolized lime. Aromatic snuff, placed in a paper and among the roses of the conservatory, (if there be one) or on the shelves, or hung on hooks where are suspended the clothing, will destroy or prevent the propagation of vermin, and remove the unpleasant odors arising from such material, and give a grateful perfume to the room and its appendages.

THE INFLUENCE OF FLOWERS.

Flowers should always be in a class-room, if possible. If not, there should be a small space filled with rare and choice exotics, or nice camellias, or a variety of our common roses, as they are beautiful to the sight and refreshing to the worn and weary brain. In the glories of their expansion they cover more beauties and are less groveling in their nature and responsibilities than all else of God's creations. They fill the mind with awe, reverence, beauty, and sublimity. They teach the little minds lessons of love. They pour forth their aroma, and fill the rooms with odors which are healthful, life-giving and invigorating to the whole being. Then give your children flowers. Teach them their anatomy; their chemical and filroid constitutions. Teach them that all love is great and glorious in its nature and comprehension, but that that manifested in the floral universe is grander in its conception and more glorified in its beatitudes than all else of created things.

Carbolic acid is a substance which is very offensive to some. Yet it is a great purifier of the blood as well as diseased atmospheric conditions. Therefore a few

drops placed every few days on the window sills (outside) is of great benefit. If ice can be obtained, a small quantity placed in a filter, which can always be had, is always very grateful to all partakers, and its expense is trifling. Prudential reasons would demand that in known cases of

SICKNESS IN THE FAMILY

The parents be notified that a permit from the health officer or superintendent will be necessary before any others of the same family be permitted to enter your room. And why not before your classes take up their line of march from the yard to the building, see that their feet are cleanly and their persons free from impurities with which they may have come in contact during their absence from the building? Do not allow your doors or windows to be closed too tightly. So on the other hand see that your children are not placed in drafts, where their brains or intellects will become obtuse or inactive, through undue congestion and diseased nervous action. In fact, let your whole course and appearance in the school-room denote that your eyes and ears are open to each and every sound, no matter where or whence it emanates. Let your intellects be clear and bracing, so that no thought of outside or extraneous matters shall ever take possession of your mentalities to the exclusion of those matters which are of higher or nobler importance, viz: The educating and training of youths under your charge, in the paths that lay along the banks of those intellectual waters which to them shall be pure, exhilarating, and of good report. Tell them daily and hourly, if necessary, that their health and comfort depends on obedience to the little rules which you will by precept and example lay down for their guidance and duty. Let them, above all things, see in your own person that cleanliness and regard to your own personal attire, which shall instill into them hopes and aspirations for the same degrees of perfection in their own individualities. Dishevelled or unkempt hair and an untidy dress in the teacher, whether male or female, will surely reproduce itself in your young auditors a thousand fold. Be careful of your words and expressions. Let no slang phrases or ungrammatical language fall from your lips. Purity of thought and expression are next to godliness, the height of female loveliness and the glory of human serenity. Let, then, all your thoughts, actions, and emotions tend to impress your young charges with the intricacy, depth, nobleness and purity which should surround your own souls. Life is too short, and eternity too long, to neglect the little matters, the small matters pertaining to existence. In the school-room these little matters are gathered up, condensed and impressed on those little souls with a force and energy which will so stamp and impress themselves on them, as to make them lasting through life. So with you, my friends, let none of the incidents of class life more strongly impress itself upon your mentalities than this. Be ever careful of your words, thoughts, and actions before your respective charges. For in you and through you, they will hear those things and learn those things which will be of good or evil report to them through the long years of after life.

DETAILED METHODS IN ARITHMETIC.

[An Adaptation of the Grube System, from "Methods of Teaching," as given by Mr. Swett to the Normal class.]

V. *THE NUMBER FIVE.*

☞ *First combinations with counters.*

1. *Measuring.*

BY ONE.	BY TWO.
1+1+1+1+1=5	2+2+1=5
5—1—1—1—1—1=0	5—2—2=1
5—1—1—1—1=1	2×2+1=5
1×5=5	5÷2=2 and 1 R.
5×1=5	½ of 5=2½
5÷1=5	

BY THREE.	BY FOUR.
3+2=5	4+1=5
2+3=5	1+4=5
5—2=3	5—4=1
5—3=2	5—1=4
1×3+2=5	1×4+1=5
5÷3=1, 2 R.	5÷4=1, 1 R.
⅓ of 5=1⅔	¼ of 5=1¼

2. *Practice.*

1, 5—2—3+2×2=how many?
2. 2×2+1—3×1+2÷4=how many?

☞Give at least 20 additional combinations.

3. *Applied Numbers.*

☞The teacher will make up at least 10 simple questions.

VI. *THE NUMBER SIX.*

1. (*a*) Place 6 counters in a row, count forwards and backwards.

(*b*) Make six marks on slates, thus: | | | | | | count forwards and backwards.

(*c*) Make figures thus, 1, 2, 3, 4, 5, 6, count forwards and backwards.

2. *Addition.*

☞Illustrate the following combinations, first with counters, next with marks.

1+1	1+2	1+3	1+4	1+5
2+1	2+2	2+3	2+4	
3+1	3+2	3+3		
4+1	4+2			
5+1				

3. *Subtraction.*

☞Illustrate as in addition.

1—1	2—2	3—3	4—4	6—6
2—1	3—2	4—3	5—4	
3—1	4—2	5—3	6—4	
4—1	5—2	6—3		
5—1	6—2			
6—1				

4. *Analysis.*

6=1+1+1+1+1+1	6=3+2+1
6=2+1+1+1+1	6=3+3
6=2+2+1+1	6=4+1+1
6=2+2+2	6=4+2
6=3+1+1+1	6=5+1

☞Write the preceding in the Second Form.

5. *Multiplication.*

1×1=?	2×1=?	3×1=?	1×4=?
1×2=?	2×2=?	3×2=?	1×5=?
1×3=?	2×3=?		1×6=?
1×4=?			
1×5=?			
1×6=?			

☞Write the preceding in the Second Form.

6. *Division.*

2÷2	3÷3	4÷4	5÷5	6÷6
3÷2	4÷3	5÷4	6÷5	
4÷2	5÷3	6÷4		
5÷2	6÷3			
6÷2				

7. *Exercise with Counters.*

1. Place 2 counters together; two more; two more; how many times?

2. How many times 2 counters?

3. How many times are 2 counters contained in six counters?

4. Place 3 counters together; three more; how many?

5. How many times three counters?

6. Etc.

8. *Division—Another Form.*

½ of 2=1	⅓ of 3=1	¼ of 4=1
½ of 3=1½	⅓ of 4=1, 1 R.	¼ of 5=1¼
½ of 4=2	⅓ of 5=1, 2 R.	¼ of 6=1 2/4
½ of 5=2½	⅓ of 6=2	
½ of 6=3		

9. *Division—Regular Form.*

☞Write thus: 2|2 2|3 2|4, etc.

1 1½ 2

10. *Comparison.*

6 is 1 more than 5	1 is 5 less than 6
6 is 2 more than 4	2 is 4 less than 6
6 is 3 more than 3	3 is 3 less than 6
6 is 4 more than 2	4 is 2 less than 6
6 is 5 more than 1	5 is 1 less than 6

☞All these examples are to be given promiscuously as well as in regular order.

VII. *THE NUMBER SEVEN.*

1. (*a*) Place ten counters on the desk.
(*b*) Make ten marks on the slate or board.
(*c*) Make the figures 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.
(*d*) Count forwards and backwards.

II. Measuring by counters:

1. How many two's in 10?
2. How many three's in 10?
3. How many 4's, 5's, 6's, etc.?

III. Let pupils make all the combinations they can that shall equal 10, thus:

2+2+2+2+2=10
3+3+3+1=10
5+5=10
4+4+2=10, etc.

IV. Put the same into the regular form of addition, thus:

3	*Correct way* of adding: one, four, seven, ten.
3	
3	
1	*Incorrect way:* One and three are four, and 3 are 7, and 3 are 10.
—	
10	

General Remarks.

It is a feature of this method, that it teaches by the eye as well as by the ear, while in most other methods arithmetic is taught by the ear alone. If the child is to measure 7 by the number 3, the illustration, by comparison, is:

* * *
* * *
*

"If the counters are arranged in this way, and impressed upon the child's memory as depicting the relation between the number 3 and 7, it is, in fact, all there is to know about it. Instead of teaching all the variety of possible combinations between 3 and 7, it is sufficient to make the child keep in mind the above picture. The first four rules, as far as 3 and 7 are concerned, are contained in it, and will result from expressing the same thing in different words, or describing the picture in different ways. Looking at the picture, the child can describe it as: 3+3+1=, or 2×3+1=7, or 7—3—3=1, 7÷3=2 (1). The latter process to be read: I can take 3 from 7 twice, and 1 remains.

"Let the number to be measured be 10, and the number by which it is to be measured be 4; then the way to arrange dots is:

* * * *
* * * *
* *

"The child will be able to see at once, by reading as it were, that 4+4+2=10, 2×4+2=10, 10—4—4=2, 10÷4=2(2), and to perceive at a glance a variety of other combinations. The children will, in the course of time, learn how to draw these pictures on their slates in the proper way. Nor will it take long to make them understand that every picture of this kind is to be 'read' in four ways, first using the word *and*, then *times*, then *less*, then *can be taken away—times*. As soon as the pupils can do this, they have mastered the method, and can work independently all the problems, within the given number, which are required in measuring."

BOTANY.

Work for the Dry Season.

BY PROF. VOLNEY RATTAN.

[Teacher of Natural Sciences in San Francisco Girls' High School.]

II.

The structure of most seeds is best studied during their germination. Their parts become more distinct when the germ begins to grow. In many seeds the plumule cannot be seen, and the entire embryo of some albuminous seeds would be overlooked by inexperienced eyes. The tiny leaves in a dry mustard seed are not easily seen. Who by merely examining the dry grains of wheat and buckwheat would ever discover the forms of their embryos? But a week's exposure to warmth and moisture discloses the strict simplicity of one, and the symmetrical beauty of the other. After a dozen seeds have been examined, and the student has witnessed their development into plants, enough facts will have accumulated to admit of some kind of classification of seeds. A few have small embryos which do not fill the seed coats. Once having observed this fact, albuminous seeds are easily dis-

tinguished from those without albumen. Some of the former have embryos which puzzle the learner. It is hard for him to tell how much of the seed is embryo, (although he is sure there is albumen) and he cannot discover the usual pair of seed leaves. The embryo seems to be all plumule and radicle. Possibly one or two seeds have embryos which can readily be separated from the albumen, yet the pair of cotyledons is wanting. It is easy to classify the seeds in two ways, viz: into seeds with albumen and seeds without albumen; or, into seeds with two cotyledons and seeds with at least not more than one cotyledon.* It would require the study of many seeds and their development to enable one to decide which is the better classification. The student is now ready to get real information from books. He knows how to test the statements of other observers, and will take pleasure in verifying them. No small amount of pleasure will be derived from a realization that many interesting facts not mentioned in the books have been discovered; facts which beckon the observer on to the hiding places of still other facts, which in their turn join in the chase after the unknown.

It is scarcely possible for one to understand the classification of plants without some knowledge of their early growth. The natural orders must seem artificial to the mere student of flowers, who, though he easily determines that the pea and the locust tree belong to the same order, does not see that, aside from the flowers, they look much alike after all. Who, after tasting, in turn, potatoes, tomatoes, tobacco, and red pepper, would think of putting them in the same order? Yet the baby plants are alike, and one who follows their growth to maturity never loses sight of the family resemblance which the crowning act of these plants makes strikingly manifest in flower and seed.

School-room windows are good places for experimental gardens. Make narrow boxes as long as the width of the windows, and fill them with the best obtainable soil to within an inch of the top. A little wall paper will help their looks if the carpentry is bad. Several kinds of seeds may be planted at one time in each box. The orders of plants might be illustrated by planting a few seeds of different genera belonging to the same order together. For example; plant in one box beans, peas, lupines, clovers, etc.; in another box, sunflowers, thistles, marigolds, etc.

A report like the following might be written out by a pupil who had studied the germination of bur-clover.

I found a lot of clover burs in a manger one day last August. I think they must have pricked the horses' noses, for there was at least a bucketful of burs, with only a few leaves and stems. But I know horses will eat the burs sometimes. I took a handful home and examined a few. I found that each bur was a slender pod coiled as a sailor would coil a rope, in about four coils. The outer edge of the pod was armed with two rows of prickles, generally in pairs, and pointing away from each other. At first I did not notice that each prickle ended in a tiny hook. The size and general appearance of the burs are shown in the drawing. There were from five to seven seeds like little beans in each pod, lying with the concave edge toward the center of the bur. The radicle pointed away from the stem of the pod. Upon opening the seed leaves I could not clearly see any plumule. It must be much smaller in proportion to its size than the plumule of a bean. The radicle is nearly a third of the length of the seed; or much longer comparatively than the radicle of a bean. I planted twenty of the seeds and one entire bur in an old oyster can. This

*Seeds of pines and like trees have more than two cotyledons.



was August the 4th. On the 9th, I took up and examined three of the seeds. Two of the radicles had grown through the skin of the seed to a length twice that of the seed. For some reason the radicle of the third seed had not grown any, but upon squeezing the seed, a little liquid came out through a hole in the skin just opposite the end of the radicle. I suspect that all seeds have holes, or at least weak spots, in the skin, for the radicles to grow through; because otherwise I should think the radicle would go on around the seed between the cotyledons and the skin. I mean to find out. The plumules had grown to be quite visible. August the 14th, I dug up four more seeds. The radicles were now nearly an inch long, and had pushed the cotyledons nearly to the surface of the ground. Little roots were growing from the lower parts of the radicles. The cotyledons had fairly burst the enclosing skins, and were larger than before. The plumule was a little larger, but yet very small. Before another five days passed by, the cotyledons were fairly above ground. The seeds had "come up," all but part of the radicle. By-the-way, radicles grow up more than down in this kind of seeds. The cotyledons, which all the time had been putting on a leaf-like appearance, were now green leaves twice as long and broad as they were when they started for the air, but no thicker. After my little clover plants were up I looked at them every day. Soon each plumule put out a leaf. But the leaf was not of the kind I was looking for. It looked like a clover leaf with the two side leaflets plucked off. The plants all bore the same kind of a leaf, so I concluded it was natural for them to have but one leaflet on the first plumule leaf. I looked anxiously for the next leaf, thinking possibly it might have two leaflets only. A second leaf soon appeared with three leaflets like all that afterward grew. The successive stages of growth are represented in the figure.

THE YOUNG TEACHER.

BY CHARLES M. DRAKE.
[National City, San Diego County.]

CHAPTER I.
IN WHICH HE GETS ADVICE.

"Frank, why don't you go to San Diego next week and pass examination, and teach school?" said the teacher of the San Miguel District to a manly looking boy who was walking home with him at the close of school.

"I, sir!" said the boy, coloring a little as he spoke. "Do you think I know enough to teach school, Mr. Osgood?"

"No; I don't think you do, Frank. But you know enough to pass examination, and quite a deal besides that will be of service to you when you get to be Prof. Dare. And when you pass examination and get your certificate, no one will be apt to inquire further about your qualifications, and I don't suppose you will spoil more

scholars in learning how to teach than the majority of teachers have done."

"I should want to make scholars instead of spoiling them," said Frank, laughing. "But what do you mean about the other knowledge that helps a teacher? Do you mean a knowledge of Spanish if one has to teach those children?"

"Not exactly," said Mr. Osgood, smiling, though that is very desirable to have in Southern California. I believe you can out run, out jump, and out lift most any boy of your age; and though physical strength and activity are not considered as essential now as they were in my young days, yet they are of prime importance. One half of the troubles in our school-rooms arise from bad digestion and consequent ill-health of teacher or pupil. Then, it is good for a teacher to be able to lead in all kinds of sports if he should desire to do so. Then you have a pleasing address, good sense, and some knowledge of the world, all of which are great helps to a teacher. Now I am going away in a couple of weeks, and I should like to see you pass examination and get a situation as teacher before I leave."

"Do you think, sir, that they would desire me to teach here if I got a certificate?"

"You should by no means teach here even if they wanted you to," replied Mr. Osgood. "One should never teach his first school where he is well-known, or where he has many relatives."

"But do you think I could manage the big boys? The little ones most always like me, and I think I could get along with them, but big boys might not want one scarcely older than themselves put over them as teacher."

"I think big boys will not be so likely to trouble you as big girls," said Mr. Osgood, glancing archly at Frank's good-looking face.

Frank blushed, and said hastily, "Oh! I don't think I would have any trouble the way you mean. Mr. Jay, who taught here a couple of years ago, spent half his time courting the big girls in school and out, and it just broke up his school before the term was near out."

"He ought to have got married. That would have cured him, Frank."

"But do you really think I could pass examination? They say it is very hard, and I know a great many Eastern teachers come here and fail to pass."

"You would not wonder at that, Frank, if you knew how easy the examinations are in some of the Eastern States. It is a shame to see what sort of scholarship is thought sufficient for a teacher in many parts of the East and South. But are those questions that I have been giving you hard ones?"

"Oh! no, sir. But they were just a review of what I passed over some time ago. You have often given me harder ones."

"Yet those were the questions that were thought so very difficult at the last two examinations. Next time the questions will probably be much easier. The truth is, the questions asked are mostly quite easy, and only the ignorant are likely to miss enough questions to fail entirely. True it sometimes happens that a really good teacher may fail to get the percentage required, but almost always he can answer enough to pass in some shape or other."

"I heard one teacher say he failed because he was rusty in his studies," said Frank, "and I thought at the time that no good teacher would suffer himself to get rusty in the common branches."

"True, and that excuse is often given when questions are asked that any one who had ever before mastered the subject, could never forget the proper answers. A teacher may forget dates of history, unimportant geographical knowledge or some such thing, but to forget fundamental principles of arithmetic or language; or

those geographical places that are to be found in any daily paper, implies something more than rustiness. It is slothful stupidity; and a stupid teacher will make stupid pupils."

"It seems to me," remarked Frank, "that in spite of the hard examinations, there are many teachers that do not know enough to get the certificates they do hold."

"Yes. That is the fault of all inefficient or too indulgent Boards of Examination."

"I thought the County Boards were always composed of the very best teachers of the county," said Frank, in much surprise.

"In theory, but not in practice. The best teachers are perhaps too busily employed to attend to an examination which they would have to lose money to conduct. If we had a few capable State Examiners who each had his district to attend to in conjunction with the County Superintendents, I think we would get better teachers than we now have. Yet County Superintendents might do much if they were not often grossly incompetent, and sometimes even dishonest. For example, one San Diego County Superintendent gave one teacher the examination questions to take home and write out the answers there, and even then the teacher failed to get a State certificate on his papers. The same man gave certificates to mere schoolgirls upon oral examinations, and refused to grant a certificate to a most capable teacher who intended to apply for a school that he, the Superintendent, wanted for himself."

"But do certificates really show a teacher's standing in each study?" inquired Frank.

"No. For instance, I received only 18 credits out of 25 in music, but got 48 out of 50 in natural history. In music, long years of experience as a music teacher enabled me to answer all the questions in the plainest and briefest manner; while my deficient knowledge of botany and Zoölogy was but poorly hid under the big words and obscure sentences I used to try to explain what I knew but little of."

"Then I suppose one must use big words to make his percentage high," said Frank, laughing. "But am I old enough for a teacher, Mr. Osgood? I will be eighteen next Monday."

"The law says you are old enough, Frank. I think you are pretty young. But here is my home, so, good night. Come here to-morrow and we will talk further about your future profession, for I feel sure you will be a teacher."

EDITORIAL DEPARTMENT.

The Study of the Natural Sciences in Our Common Schools.

Is there a place for the Natural Sciences in our common school course? The ancient pedagogue, who was nurtured on Latin and Greek; who speaks ten languages and thinks in none; who knows science only by repute, says, emphatically, No! Our present course suits him quite well; if in anything faulty, it is that some slight provision is made for instruction in one or two of these sciences. He complains that the course is too long; there are too many studies for the seven or

eight months of the average school year; in ungraded schools no teacher can do the required work; and the children suffer by reason of the multiplicity of branches to be taught.

These are specimens of complaints heard daily. Nor are they altogether groundless. Our course of study *is* too long; and children cannot master one-half the subjects. But we anticipate a wide difference in regard to the subjects to be considered essential.

Physics, botany, physiology, and natural history are the unnecessary and redundant subjects according to the old-school teacher. The views of those of a more modern class are sufficiently startling, and perhaps not altogether unreasonable. Teachers of this class assert that we attempt to teach too much geography; word analysis is overdone; technical grammar should have no place in the school course below the high school; history could profitably be taught as a part of reading, and should always be made the basis for inculcating lessons of patriotism.

We incline to the belief that these views are founded on a knowledge of what is expected of our schools by those who pay for their support.

It is useless to discuss, here, whether the elementary branches only should be taught in our schools, or if a perfect scheme of education contemplates a system extending from the primary school to the university.

We now actually teach more than "the three R's" in our free schools; and if a reduction in the number of studies is to be made, the judgment of our teachers must decide what is to be omitted and what retained. We consider it would be a great mistake to "drop" physiology in order to gain time to teach technical grammar; the analysis of plants in botany is now generally held more important than the analysis of words in word-analysis. John Stuart Mill, an eminent authority on this, as on other questions, holds that geography as taught in the schools, is of no earthly benefit; history being held by most teachers a mere recital of dates and events, is equally valueless.

To construct a well-balanced course of study is a difficult problem with which to grapple. There are parties in education as in everything else; but all agree in beginning every course of instruction with reading, spelling, writing, and arithmetic. In a new and improved course, drawing will hold a much more prominent place than at present; physiology will be taught, and if necessary, to the exclusion of word-analysis; the quantity and quality of botany will be increased at the expense of grammar; the elements of physics and chemistry will be taught, and the quantity of geography and history greatly diminished.

We believe such a course of study will reduce the quantity of work now required *from pupils*. We believe it will better discipline the mind, cultivate the power of observation, and strengthen the judgment than our present course. We believe it will make the graduates of our schools more able to wrestle successfully with the problems of life, more alert, more awake to the exigencies of modern life than the old humdrum *curriculum* of an age, musty with ancient lore, and still imbued with a superstitious reverence for the subtleties of language.

This is the present character of our course of study, from that of the primary school to the university. Reform means less words —more facts; little language—much science.

The Meeting of the State Association in September.

It is hoped and expected that there will be a large gathering of teachers at the meeting of the State Association, at the end of this month. Every teacher should exert his utmost influence to secure an extra holiday (if this be necessary) in order to attend. The programme published elsewhere in our columns speaks for itself. The direct benefits which will accrue to teachers, but more especially to the progress of the cause of education, should induce extra efforts to make the concourse of teachers as great as possible. Some little sacrifice must, if necessary, be made, for this is a critical period in the educational history of the State.

The State Constitutional Convention which assembles at the close of the session of our body, contains a comparatively large number

of teachers—some of them fresh from the school-room. Now is the time to weld another link in the great chain of progress.

The new constitution should contain clauses which will more fully provide for maintaining a free system of popular education; effectually and forever protect that system from the assaults of its enemies; and establish so wise and non-partisan an administration of its benefits that it will become more firmly riveted in the affections of the people. The presence of a large body of earnest and intelligent educators will undoubtedly have great weight with the members of this Convention. Moreover, thousands of strangers from every part of the coast, will congregate in Sacramento, who will carry away to their homes impressions favorable or unfavorable to education, according to what they see and hear in a meeting representing the teachers of California.

Composition Writing.

It may be well to call attention to the series of excellent articles on this subject now being published in the JOURNAL. The author, a high-school principal of the highest ability and experience, has great success in producing excellent results in this most difficult branch. The articles are worthy of close attention.

Composition is still the stumbling-block for both teacher and learner. It is remarkable how meagre the results are in teaching it. Pupils who have been under instruction for ten years or more, are too frequently unable to express the simplest idea in plain, intelligible English. This is true of their oral as well as their written speech.

A lamentable deficiency certainly exists somewhere, either in the matter or manner of instruction in our schools. We ascribe much of the evil to the teaching of technical grammar to the exclusion of composition.

We believe constant instruction should be given in composition in all the grades of our school course, and none in technical grammar below the high-school. This opinion is revolutionary, but rests on the basis that we learn by use not by abstraction.

To speak and write correctly, fluently, intelligibly—practice speaking and writing, and do not speculate concerning them.

Many excellent teachers hold strongly to one fallacious opinion which seriously impairs their efficiency. And this is that their pupils are created especially to do them credit and honor. They complain of injustice if bright pupils are promoted, or if a class of dull children is given them to instruct rather than bright ones. Here they make a grave mistake. Children are classified not to put the laurel wreath on the teacher's brow, but for their own benefit. The complaint that changes and transfers of bright children will injure a school, is puerile and unworthy. The object of our schools is to produce the best general results in educating children, not to glorify teachers.

We desire to call attention to the series of excellent articles in course of publication in the JOURNAL, entitled "Detailed Methods in Arithmetic." These "Methods" were prepared by Mr. Swett for the use of the Normal Class in the Girls' High School, and are published in the Manual of Instruction for the schools of San Francisco. They are the "Grube System" of teaching numbers in an Americanized and highly practical form.

GENERAL NOTES.

Ex-President Mark Hopkins, of Williams, will have given half a century to that college in 1880.

Louis Kossuth, who still lives in Turin, is seventy-six years old and quite feeble, though his mind is as vigorous as ever. The stories of his poverty are exaggerated, it seems; but he cannot be said to be independent.

A DEFINITION OF SCIENCE.—G. H. Lewes, author of "Problems of Life and Mind," defines science as "First, a general method or Logic of Search, applicable to all departments of knowledge; and, secondly, a doctrine, or body of truths and hypotheses, embracing the results of search."

Miss Phœbe W. Sudlow, Superintendent of the Davenport, Iowa, schools, has been appointed lady professor of the Iowa State University, and professor of English language and literature, with the full professional salary of $1700.

Coal in China.—It may surprise the general reader to learn that the coal production of China has already reached 3,000,000 tons annually, and is rapidly increasing. Of this production about 1,000,000 tons represent the output of the anthracite beds of the province of Shan-si. Speaking of this, the most extensive deposit of the empire, Baron Richthofen affirms that its area vastly exceeds that of the anthracite region of this country, and that no other coal-field in the world can be compared with it in the union of the most favorable conditions as regards position, quantity, and quality. He pronounces the opinion that in the near future these deposits will rise immensely in importance.—*Harper's Magazine.*

The remedy proposed by M. Melsens for mercury and lead poisoning, and which he has demonstrated to be efficacious not only in the cure of chronic cases resulting from years of exposure to and accumulation of the poisons in the system, but also in the prevention of disease from these sources, is the iodide of potassium. The action of the iodide is to transform into soluble form and to eliminate from the system the accumulation of insoluble metalic compounds, upon the presence of which the affections of the organs involved by the disease depend. The French Academy has crowned this important discovery with the Monthyon prize, and a Belgian jury of scientists has awarded M. Melsens the Guinard prize of 10,000 francs. —*Harper's Magazine.*

During the past few years the educational institutions of Rome have been entirely reorganized. The university, as constituted at present, is without a theological faculty. It numbers sixty-four professors—twelve in the legal faculty, twenty-four in the medical, sixteen in the scientific, and twelve in the philological-philosophical. Nearly all the conveniences of a well-appointed university are now enjoyed by the students—a botanical garden; laboratories for physics, chemistry, and physiology; the new observatory on the Capitoline; with special institutes for geology, mineralogy, mathematics, physics, pharmacy, comparative zoölogy and anatomy, pathological anatomy, and six clinics. During the past month the minister of education has issued a decree for the foundation of a school of archæology, which shall be amply equipped and meet a want long felt in this center of archæological investigation.—*The Independent.*

The recent meeting of the "American Institute of Instruction" was held at Fabian's in the White Mountains, and is pronounced the largest educational meeting ever held in America. It is said that more than 3,000 teachers were present. Thomas W. Bicknell, editor of the *New England Journal of Education*, was President; and the great success of the meeting may justly be ascribed to the ability of the management. Teachers attended from the Western States as well as from the East. We believe that the good done teachers by attendance during the four days of the meeting was very great. The addresses, essays, and general instruction were of the highest order, and compare favorably with those presented annually at the meeting of the National Association.

Teachers in the interior of this State, who have grumbled at the recent "spell of warm weather," may take comfort after reading the following from *Harper's Weekly:* "A hot atmospheric wave, starting in Manitoba about July 14th, swept down the Mississippi Valley and thence spread over the East like a pestilence, bearing disease and death in its train. West of the Rocky Mountains it was cool and pleasant, but from Mississippi to Maine the whole country suffered, with the exception of a few places. St. Louis, shut up in a valley where all breezes are cut off, suffered most severely. In New York, July 18th and 19th were the hottest days, the highest record being 94° at the United States Signal Bureau, while thermometers in other less airy and less protected locations indi-

cated 97° and even 100°. In New York, and the neighboring cities of Brooklyn and Jersey City, there were about 140 prostrations directly due to the extreme heat, and thirty of these were fatal. There was much suffering even in well-ventilated buildings, but in close tenements the distress was in numerous instances intense." And this is not one-half as bad as in Australia. For example, at Adelaide last year the shade range of the thermometer for five successive days varied between 100° and 106°. It has been warmer still at Melbourne, where 111° was recorded several years ago, while in the interior of Australia the heat was even greater. At one township in New South Wales last year the maximum shade temperature for a week was never below 112°, and on one day was as high as 118°, and in Queensland 126° has been recorded.

VALUE OF KEEPING SCHOOL. — I began active life as soon as I had left college, as I can well wish all of you might do. I began in keeping school. Not that I want to have any of you do this long, unless an evident fitness or "manifest destiny" appear so to order. But you may be sure that, for a year or two of the start of life, there is nothing that will teach you your own ignorance so well as having to teach children the few things you know, and to answer, as best you can, their questions on all grounds. There was poor Jane, on the first day of that charming visit at the Penroses, who was betrayed by the simplicity and cordiality of the dinner-table—where she was the youngest of ten or twelve strangers—into taking a protective lead of all the conversation, till at the very last I heard her explaining to dear Tom Coram himself—a gentleman who had lived in Java ten years—that coffee-berries were red when they were ripe. I was sadly mortified for my poor Jane as Tom's eyes twinkled. She would never have got into that rattle-trap way of talking if she had kept school for two years. Here, again, is a capital letter from Oliver Ferguson, Asaph's younger brother, describing his life on the Island at Paris all through the siege. I should have sent it yesterday to Mr. Osgood, who would be delighted to print it in the *Atlantic Monthly*, but that the spelling is disgraceful. Mr. Osgood and Mr. Howells would think Oliver a fool before they had read down the first page. "L-i-n, lin, n-e-n, nen, linen." Think of that! Oliver would never have have spelled "linen" like that if he had been two years a teacher. You can go through four year at Harvard College spelling so, but you cannot go through two years as a schoolmaster. — *Edward Everett Hale, in How to Do It.*

MEETING OF THE EXECUTIVE COMMITTEE OF THE STATE ASSOCIATION OF TEACHERS.

Pursuant to the call of the President for 1878, Supt. A. L. Mann of San Francisco, the Executive Committee of the State Association of teachers, met in Mr. Mann's office, Aug. 9th. Present—Messrs. Mann, McChesney, Campbell, and Lyser. Absent—Mrs. Carr, Messrs. McMeans and Denman. Principal W. T. Reid, of the San Francisco Boys' High School, being present, was invited and took part in the deliberations of the Committee.

On motion of Superintendent Campbell, the Association was called to meet on Tuesday at 2 P. M., September 24th, in the Assembly Chamber, at Sacramento, the meeting to continue to and include Friday, September 26th.

Mr. Lyser was requested to announce in the JOURNAL that the Executive Committee would receive the titles of addresses or essays to be read at the meeting of the Association.

The following programme was here adopted, subject to such additions and alterations as might be determined on by President Mann and Secretary Lyser, to whom authority was given, by resolution, to effect changes.

PROGRAMME.

TUESDAY, SEPTEMBER 24TH, 2 P. M.

Organization.

Appointment of Committees.

TUESDAY EVENING, 8 P. M.

Opening Address by Governor William Irwin.

Lecture, "School Hygiene," by Dr. H. M. Fiske, of San Francisco.

WEDNESDAY, 10 A. M.

SECTION WORK.

High School Section meets under John Swett, Principal of the San Francisco Girls' High School.

Grammar School Section under A. H. McDonald, Principal of the Sacramento Grammar School.

Primary School Section under Deputy State Superintendent Jeanne C. Carr.

Superintendents' Section under Supt. F. M. Campbell, of Oakland.

WEDNESDAY AFTERNOON.

Annual address of the President of the Association, A. L. Mann.

Reports of Committees appointed at meeting of 1877.

Address by Mrs. Jeanne C. Carr; subject, "English and Continental Training Schools for Women, in Domestic and Industrial Arts."

WEDNESDAY EVENING. 8 P. M.

Paper on "Drawing," by Prof. George Schoof, Instructor of Drawing in San Francisco Schools.

Lecture, "Teaching Morality in the Public Schools," by Prof. Martin Kellogg, of the University of California.

THURSDAY FORENOON.

Section work as on Wednesday.

THURSDAY AFTERNOON.

A paper on "Reading," by Miss Irene Hardy, Oakland High School.

Discussions in the following order:

On President's Address; on Report of Standing Committees; on Addresses; on Section Work, in the order of questions from High, Grammar, Primary, and Superintendents' Sections.

THURSDAY, 8 P. M.

Lecture on ———, by Prof. Hilgard of the University of California.

FRIDAY, 10 A. M. AND 2 P. M.

An address on "Political Economy in the Schools," by Prof. Wm. White, of the Boys' High School, San Francisco.

"The School of the Future," by Prof. A. W. Oliver, Principal of the Gilroy High School.

Annual election of officers.

Reports of Committes.

General Business.

Essay on "The Kindergarten," by Miss Emma Marwedel, of Oakland.

Friday evening at 7 : 30 P. M., an address by John Swett.

Lecture by Prof. H. B. Norton, of the California State Normal School.

There will probably be addresses, also, by President John Le Conte, of the University, Prof. Joseph Le Conte, Profs. Moses and Sill.

STATE OF CALIFORNIA.

Department of Public Instruction.

APPORTIONMENT OF SCHOOL MONEYS.

1. All *State* school moneys are apportioned to the several counties by the Superintendent of Public Instruction, in proportion to the number of census children for the school year next preceding. (See Section 1858, Political Code.)

2. County Superintendents make, and are responsible for the apportionment of "all the State and county school moneys" to the several districts in their respective counties, in accordance with the provisions of Sections 1858, 1859, 1860, and 1861, Political Code, which should be strictly adhered to.

3. Bear in mind that a *six months' school in the district*, kept by a legally qualified teacher, during the school year ending June 30th, 1878, is necessary to entitle a district to any apportionment of school

moneys for the present fiscal year. A voluntary union of two or more districts for school purposes does not constitute a *joint* district in a legal sense, and the district or districts in which school has not been taught cannot *legally* receive any apportionment of school moneys.

4. Any school district not maintaining a legal school six months during the year ending June 30th, 1878, or not complying with any or all of the provisions of Sections 1859 and 1860, forfeits its apportionment for the present fiscal year, and the moneys so forfeited must be apportioned according to subdivision 4, Section 1858, Political Code.

USE OF SCHOOL MONEYS.

1. State and county school moneys must be used exclusively for the support of schools in the school year in which such moneys are apportioned, and for no other purpose whatever, until an eight months' school has been maintained during that year. (See Section 1621, Political Code.)

2. After an eight months' school has been taught, if there is an unexpended balance in the *County* School Fund, it may be used to pay former indebtedness, or for the year succeeding ; but the *State* School Fund must be used only for the payment of teachers and for school library purposes. (See Section 1621 and 1622, Political Code.)

3. The School Library Fund is taken from (not in addition to) the State School Fund, apportioned according to Section 1858, Political Code. This fund must be expended in the purchase of apparatus, or books *recommended by the State Board of Education*, and for no other purpose whatever. (See Section 1712, Political Code.)

4. Neither the State nor County Superintendents have any discretionary power in the apportionment of school moneys. The terms of the law are explicit and mandatory, and a violation of them is punishable as a misdemeanor, and by removal from office. (See Sections 176 and 772, Penal Code ; and, also, "An Act providing for the removal of civil officers," etc., approved March 30, 1874.

5. The people whose representatives make the laws, not school officers who are subject to penalties if they do not execute them, are responsible for unwise or unjust legislation. The violation of a law, or an evasion, or neglect of its requirements, is a crime against society which no good citizen will knowingly commit.

RENEWAL OF CERTIFICATES.

1. All certificates, State, county and city, after the expiration of the *time* for which they are granted, *are dead*, and cannot, therefore, be legally renewed.

2. The fact that certificates have no legal existence after the time for which they were given has *expired*, and consequently cannot be renewed, is not strengthened by the expression, "At the expiration of the time for which they were granted." (See Sections 1753, 1775, and 1792, Political Code.)

3. A certificate granted on one that has expired, is not a *renewal*, but a new certificate, issued without authority of law, and *invalid*. (See Section 1869, Political Code.)

4. All certificates may, in the discretion of the Board granting the same, and at the time they expire (allowing a reasonable time for their transmission) be renewed.

ON GRANTING COUNTY CERTIFICATES UPON CERTIFICATES OF OTHER COUNTIES ; AND CITY CERTIFICATES UPON CERTIFICATES OF OTHER CITIES.

1. County Boards may, in their discretion, without examination, grant certificates of like grade, and for the unexpired time, to the holders of certificates granted by the various County Boards of the State, and such certificates may be renewed when they expire, by the Board granting the

same, *but county certificates cannot be granted upon city certificates.* (See Section 1771, subdivision 5, Political Code.)

2. City Boards may, in their discretion, without examination, grant certificates of like grade, and for the unexpired time, to holders of certificates granted by the various City Boards of the State, and such certificates may be renewed when they expire, by the Board granting the same, *but city certificates cannot be granted upon county certificates.* (See Section 1792, Political Code.)

3. It should be distinctly borne in mind that *city* certificates are granted upon the same studies, and for the same time, *i. e.*, two, three, and four years, as State certificates, while county certificates are granted upon a less number of studies (excepting First Grade County), and for *one, two* and *three* years, showing that the obvious intent of the law was not to make the two kinds of certificates, city and county, interchangeable. (See Sections 1771 and 1791, subdivision 1, Political Code.)

4. City certificates are valid in the several counties of the State in schools of a corresponding grade. (See Section 1793. Political Code, as amended.)

VALIDITY OF CERTIFICATES AND STATE EDUCATIONAL DIPLOMAS.

All certificates, city, county, or State, and the State educational diploma, to be valid, must have the standing in each study indorsed upon them. (See Section 1749, Political Code.) Provided, that State certificates granted in accordance with the provisions of Section 1750 of the Political Code, and State educational diplomas granted upon such State certificates, shall have indorsed upon them only the name, date, and authority by which such certificates and diplomas have been issued.

RENEWAL OF STATE CERTIFICATES AND STATE EDUCATIONAL DIPLOMAS.

All State certificates and the State educational diploma may be renewed by the Board of Examination granting the same, at the expiration of the time for which they were granted, on application of the holders thereof; provided, that the application be accompanied by the certificate or diploma, and the recommendation of the School Superintendent where the applicant resides, certifying that the person applying is a successful teacher, of good moral character, and designs to continue in the profession of teaching; and provided further, that the certificates or diplomas shall not be renewed after the time for which they were given has expired.

CERTIFICATES GRANTED UPON SECTION 1750 OF THE POLITICAL CODE.

The State Board of Examination may grant certificates upon any State Normal School diploma, or life diploma given by any State Board of Examination in the United States; provided, that the application be accompanied by the diploma, and the recommendation of the School Superintendent where the applicant resides.

STATE EDUCATIONAL DIPLOMAS.

Applicants for the State educational diploma must have held a valid first grade State certificate not less than *one* year—or a first grade county or city certificate for at least *five* years—must send the date of such certificate to the State Superintendent's office, together with the recommendation of the School Superintendent where they reside, with satisfactory evidence of having taught successfully at least *five* years; provided, that if their State certificate was granted prior to January 1st, 1872, or on the provisions of Section 1750 of the Political Code, then the certificate shall be forwarded to the State Superintendent's office, in order that the proper indorsements and record may be made.

LIFE DIPLOMAS.

Applicants for a life diploma must have received the State educational diploma,

must send the date of the same to the office of the State Superintendent, with the recommendation of the County Superintendent where they reside, and satisfactory evidence of *ten* years successful teaching, or evidence that they have held the office of State, City, or County Superintendent one year after receiving their educational diploma; also, a fee of three dollars, (Section 1757, Political Code) to be returned if the applicant is not successful.

All diplomas, renewed certificates, and certificates granted upon State Normal School diplomas, will be sent, when granted, to the School Superintendents recommending the same, unless otherwise specifically directed. EZRA S. CARR,

Supt. of Public Instruction.

Sacramento, July 16th, 1878.

The foregoing, so far as it relates to the law on the subject, is fully concurred in by this office. JO HAMILTON,

Attorney-General.

By MATT F. JOHNSON.

July 19th, 1878.

State Supt. E. S. Carr has received a report from State Controler Brown, that there is now in the State School Fund, subject to apportionment among the various counties, $208,630.43. The whole number of census children in this State for the year 1878–79, is 205,475, and the amount for each child is $1.01.

CORRESPONDENCE, NOTES, AND QUERIES.

Grammar.

The following paper was handed in by a teacher at a recent County examination. It is not a specimen of what California teachers generally do on examination. The writer is not likely to read the JOURNAL, so nobody's feelings will be hurt. The person who wrote these answers is said to have had seven years' experience as a teacher. No certificate was granted on this examination, and a re-examination of the papers was asked for and granted; but, of course, with no successful result.—[ED. JOURNAL.

1. *State the mood, tense, and voice of the verbs in the following sentences: I am struck. Do not run. He is reading. Dost thou sleep. He will have been thinking.*

State the mood, tence and voise in the following Sentences: I am struck. I the first person Nominative case to the verb struck. Do Not run: Do Not is an adverb describing run. He is reaidng: He is a personal pronoun Mascaline Gender Third person Singular Number and Nominative case to the verb is. Reading is a common Noun Third person singular Number and objective case govern by the trans verb is. Dost thou sleep: Dost is an Intoroga pronoun and Nominative case to the verb Sleep. Sleep is a common Noun Third person Singular Number objective case governed by the transe verb thou, He is a personal pronoun, Mascaline Gender Third person Singular Number and Nominative case to the verb have been thinking. Have been is an aregular transative verb indictive Mood Third person plural Number objective case governed by the tran verb will. Thinking is a Common Noun Third person plural Number objective case governs by the transtive have been.

2. *Analyze the sentence: "I have heard that the papers report him to have been killed."*

2. I the first person and Nominative case to the verb have heard. That is a demonstrative pronoun possess. The is an article placed before a noun to limit its meaning. Paper is an adgetive describing report. Report is an adgetive describing him. Him is a personal pronoun Third person singular Number Mascline gender and obgective case governs by the transtive verb have heard to is a preposition havebeen is an aragular transative verb indictive Mood Third person singular number nom. case to the verb killed. Killed is a common Noun Third person plural Number, obgective case govern by the transative have been.

3. *Define conjugation. What is a synopsis?*

3. Synopsis present, sy. part. sy. perfect parsiple Synopsis.

4. *Write the possessive case, singular and plural of deer, goose, it, lady, man.*

4. Possessive case singular and plural of deer. Those deer's plu. belong to a frien of mine.

Singular goose plural geese they are by a friend of Mine. It merely points out. Lady singular ladies plural are coming to see Me. Man singular Men plural are very Ingenious.

5. *Correct the following sentences*: "*He has mistook his true interest.*" "*I intend to summons him.*" "*He has trod on my toes.*" "*Neither smoking or refreshments are allowed here.*" "*He was obliged to fly the country.*"

5. He has mistook the true Interest I intend for to summons him. He has trod on My toes. Neither Smoking nor refreshments are allowed here. He was obliged to leave the country.

6. "*Jeffreys, the then judge, was cruel.*" *Parse then.*

6. Jeffreys the then Judge was cruel then is a adgetive describing Juge.

7. *Which of the auxiliaries denote emphasis, which denote possibility, which power, necessity and futurity?*

7. I shall go if possible. I can see no possibility to get away. I shall be obliged to go. I shall or will go to-morrow.

8. *When must nominatives connected by and, have a verb in the singular number?*

8. When must Nominatives connected by and, have a verb in the Singular Number. John and James went. They went.

9. *When should "one another" and "each other" be used?*

9. I shall go one one another of the too mountains. Each other I shall take each one or the other.

10. *What is the difference between "later" and "latter," "rise" and "raise"?*

EDITOR JOURNAL: I send solutions to some of the questions in the June number of the JOURNAL:

A piece of growing grass will feed 6 horses 8 weeks, or 8 horses 4 weeks.

1. How long will it feed 7 horses?
2. How many horses will it feed 2 weeks.
3. How many horses will it feed all the time, the grass supposed to grow at the same rate each day.

The chief difficulty in solving these questions consists in finding the relation between the original quantity of feed and its growth per week. To find this relation, let p = the original quantity and t = the growth per week, p and t representing pounds or any measure of quantity. Then $p+8t$ = quantity eaten by 6 horses in 8 weeks.

$\frac{p+8t}{6}$ = quantity eaten by 1 horse in 8 weeks.

$\frac{p+8t}{6} \div 8 = \frac{p+8t}{48}$ = quantity eaten by 1 horse in 1 week.

Also, $p+4t$ = quantity eaten by 8 horses in 4 weeks.

$\frac{p+4t}{32}$ = quantity eaten by 1 horse in 1 week.

$\frac{p+8t}{48} = \frac{p+4t}{32}$, whence $t = \frac{p}{4}$ that is the increase per week is equal to one-fourth of the original quantity.

$\frac{p}{4} \times 8 = 2p$ = growth in 8 weeks.

$p+2p = 3p$ = quantity consumed in 8 weeks by 6 horses.

$\frac{3p}{6 \times 8} = \frac{p}{16}$ = quantity consumed by 1 horse in 1 week.

$\frac{p}{16} \times 7 = \frac{7p}{16}$ = quantity consumed in one week by 7 horses.

Now let x = number of weeks it will last 7 horses.

Then $p + \frac{px}{4} = \frac{4p+px}{4}$ = quantity consumed in x weeks by 7 horses.

And $\frac{4p+px}{4} \div \frac{7p}{16} = \frac{16+4x}{7}$ = number of weeks it will feed 7 horses.

$\frac{16+4x}{7} = x$, whence $x = \frac{16}{3} = 5\frac{1}{3}$ = number of weeks it will feed 7 horses.

2. Let x = number of horses it will feed 2 weeks.

$\frac{p}{16} \times 2 = \frac{p}{8}$ = quantity consumed by 1 horse in 2 weeks.

$\frac{px}{8}$ = quantity consumed by x horses in 2 weeks.

$\frac{p}{4} \times 2 = \frac{p}{2}$ = quantity consumed by 1 horse in 2 weeks.

$p + \frac{p}{2} = \frac{3p}{2}$ = whole quantity consumed in 2 weeks.

$\frac{px}{8} = \frac{3p}{2}$, $2px = 24p$.

$2x = 24$

$x = 12$ = number of horses it will feed 2 weeks.

3. From the other solutions, we find that the growth per week of the grass is $\frac{p}{4}$ and the quantity consumed by 1 horse in 1 week is $\frac{p}{16}$.

Let x number of horses the growth will keep. Then $\frac{p\,x}{16}=\frac{p}{4}$, $4px=16p$, $4x=16$ and $x=4=$ number of horses the growth in the feed will keep.

The pasture will keep *all* the time just as many horses—and not one more—as the growth in the feed will sustain; for, suppose the growth to sustain four horses; then put in one more; in time the fifth would consume the original quantity of feed, after which time—as the growth would sustain only four—there would be no feed for the fifth.

Yours, etc.,

MARCUS BAKER.

Sutter County, Cal., Aug. 5th, 1878.

EDITOR JOURNAL: After reading Mr. Price's reply to my question, I am still as much in ignorance as before. I wish to ascertain how he proves the second *member* of the equation, $4x^2-(\ )+(14+x)=0$, is zero. I have looked the equation over carefully, but have not been able to prove it for myself. If we take the equation, $x^2-\sqrt{14+x}=0$, and complete the square in a regular manner, something must be either added to or subtracted from each member; in either case the member would not be zero. If, in order to complete the square, one quantity is added to and another subtracted from each member, the quantity added must equal the one subtracted, or the second number could not remain zero. If the square is completed in the latter way, how are those quantities shown to be equal?

Hoping that Mr. Price will be as willing to submit a thorough explanation as he would had I meant term instead of member, I remain,

Yours respectfully,

T. A. SPAULDING.

Livermore, August 22d, 1878.

Educational Intelligence

FROM

STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

The number of pupils enrolled in the public schools of this city is 31,963. There are 27,831 children in daily attendance.

There are nearly 700 teachers employed in San Francisco. Of this number 57 are male, the others female. The average monthly salary of male teachers is $132.35; of female teachers, $78.95.

The corps of teachers in San Francisco includes 124 Normal School graduates.

Here is an example to public bodies, of *bona fide* retrenchment. The Classification Committee of the Board of Education has recommended changes which the Board has adopted, whereby an annual saving of $34,500 has been effected. Director Taylor, Chairman of the Supplies Committee, has in his department, likewise, made a reduction of about $8000. And not one competent teacher has been dismissed, salaries have not been reduced, and the efficiency of the schools have been greatly increased.

M. C. Brophy, an able and successful teacher, and formerly vice-principal in the Redwood City grammar school, has been elected assistant in the ungraded school of this city.

There are 27,831 pupils attending the public schools of this city. The yearly cost for this number will amount to $891,027.28. An individual expense of $32.

SANTA CLARA COUNTY.

An ungraded class has been established in San Jose, similar to the ungraded class in San Francisco. The object is to give instruction to children of advanced age in the two or three chief branches of the school course.

The San Jose *Daily Herald* has lately been devoting a portion of its valuable space to preaching reform in school affairs in that city. It institutes a comparison between the schools of San Jose and Stockton, and finds the latter much less expensive, and just as efficient. We have some few opportunities for comparison of which the *Herald* may not be possessed; and we assure our contemporary that the San Jose schools are worth all they cost. We consider them much superior to the Stockton schools in the arrangement of classes, methods of instruction, and general supervision. In addition, we believe the length of the school year is greater in San Jose than in Stockton. The salaries of teachers in San Jose are not too high, if good ability and efficient work are demanded by the people. In fact, for the information of the *Herald* we may state, that San Jose, even now, pays lower salaries than any first-class school department in California. If it be necessary to retrench, would it not be wise to call attention to and make some reduction in the salaries of city and county officials, who get much more than school teach-

ers? Or is it possible that in Santa Clara County more education, culture, refinement, and preparation are required of a sheriff, a county clerk, or a recorder than is demanded of a grammar master, or a high school principal? Retrench by all means; but begin at the right end.

The separate school for colored children in San Jose has been discontinued, and the pupils admitted to the schools for white children. This has been done in San Francisco, Oakland, Sacramento, and all the principal cities of the State.

The San Ysidro school, Dr. White, Principal, opened with a full attendance for the summer term.

MODOC COUNTY.

The following communication from the extreme north-western corner of the State shows more interest and vitality in education than is displayed in some more favored localities nearer the metropolis.—[ED. JOURNAL.

"EDITOR JOURNAL: In most frontier settlements the neat school-house, with its modern improvements and well-qualified teacher with a first or even second grade certificate exists only as a dream of the future; with us the proposition is reversed. Cedarville boasts a very good school building neatly furnished, the roll-book showing the names of seventy-three scholars, in charge of Miss Laura B. Norris, a lady well-known to many of your readers as a teacher of more than ordinary ability. One very useful appendage to our school-house we lack, namely—a bell, which Miss Norris has determined to procure. Enlisting her pupils in the cause, she, in a very short time, gave us an entertainment which proved a complete success. Notwithstanding a threatened invasion by the Bannocks, and the consequent fear of leaving home at night, the hall was well filled by an appreciative audience, who expressed their approbation in unmeasured terms. Another is now called for by the well-pleased people, to secure additional funds for the bell, and for library books. Not the least good effect of an exhibition is the interest awakened in the school and its work; we have more confidence in our teachers, and are led to believe them equal to their position, and are at last convinced that our children are 'real smart after all.' They are stimulated to renewed effort in the acquisition of knowledge, while the parents are pleasantly reminded of the existence of a prosperous school in their midst. If good, able managers can be obtained, let us have more of these entertainments. Their beneficial results do not end with the good-night song. Rather than a failure let us have none.

"A. H. T.

"Cedarville, July 17th, 1878."

ALAMEDA COUNTY.

The building for the College of the Mechanic Arts of the State University, is now nearly completed. The cost is about $45,000.

Michael Reese, a San Francisco capitalist left, by will, $50,000 to the University for the foundation of the "Reese Library." Mr. Reese bought the library of Dr. Francis Lieber a few years ago, and presented it to the University.

The Hastings Law College, of the State University has been organized, with about forty students in the Freshman class. Prof. John Norton Pomeroy is the lecturer and professor of Law.

The city of Oakland contains 6670 children between five and seventeen years of age. There are 4571 in attendance in the public schools, and 668 in private schools.

In one of his usual very able reports to the Oakland Board of Education, Supt. Fred. M. Campbell makes a strong and logical argument in favor of free text-books.

The teaching force of Oakland consists of 116 regular and 2 special teachers, of whom 11 are men and 107 women. The amount paid annually for teachers' salaries is nearly $96,000.

Supt. J. C. Gilson has called the County Institute to meet September 4th, 5th, and 6th, at Oakland. One very sensible feature of this session is that the first day will be devoted to visiting the Oakland schools, and observing methods of teaching.

There are in this county 13,016 children between the ages of five and seventeen years.

SACRAMENTO COUNTY.

A special committee consisting of three prominent citizens of Sacramento City, lately inspected the schools of that place. One suggestion made by them was that "in the daily recitations, the ambition of teachers should be exercised rather in the positive imparting of knowledge than in scrutinizing the attainments of scholars." Another recommendation was that "more attention should be given in all grades to the natural sciences, industrial drawing, and music."

A normal class for the teachers of the city was established to be instructed in methods of teach-

ing and discipline by Principals McDonald of the Grammar School and Adams of the High School.

There are 7004 children between five and seventeen years of age in this county.

An evening school has been established in Sacramento City.

SAN JOAQUIN COUNTY.

The Stockton Board of Education has adopted the "Pacific Coast Spelling Book" for use in the schools of that city. Where is the "Tuttle Act" now?

J. B. Lillie has been elected principal of the Jefferson School, in Stockton.

SANTA CRUZ COUNTY.

An item in this journal, last month, made it appear that salaries had been reduced in Santa Cruz City. This, we are informed, is not so; on the contrary, in this age of retrenchment—*of teachers' salaries*—Santa Cruz has raised the salaries of some of its teachers.

LOS ANGELES COUNTY.

The corner-stone of a new school-house in Anaheim, to cost $10,000, will be laid on Monday under the auspices of the Masons. Excursion trains will run to Anaheim from various points of the county, and the attendance is expected to be very large.

MARIN COUNTY.

Miss Holbrook has resigned the position of Principal of the San Rafael schools, and Mr. N. H. Galusha has been elected to the place, the change to take place the first of next month.

The new rooms for the primary department are expected to be ready by September 10th.

SANTA BARBARA COUNTY.

Prof. M. Lipowitz, formerly Superintendent of Del Norte County, is principal of the Lompoc schools. This is Prof. Lipowitz's second term in this model temperance community.

NAPA COUNTY.

B. E. Hunt, a teacher of ability and experience, succeeds Ex-Supt. Fellers, as principal of the Napa City schools.

Examination Questions.

The following questions were prepared by the State Board of Education, and used in this State at the regular semi-annual examination in June:

HISTORY OF THE UNITED STATES.

(50 *credits*.)

1. Give the date of the first settlement of the Pacific Coast, by the Catholic missionaries? By the Americans? Give date of the first meeting of the Legislature. (10 cr.) 2. Name the most important historical events that have occurred in the administrations of Presidents Jefferson, Jackson, Monroe, and Polk. (10 cr.) 3. What compromise bill was passed in 1850? (5 cr.) 4. Name five prominent naval heroes? (5 cr.) 5. Name the principal Indian tribes or nations known to the Atlantic colonies. 5 cr.) 6. Name the States acquired from Spanish, French, and Mexican territory. (5 cr.) 7. Explain the Monroe treaty. (5 cr.) 8. Which of the United States was first settled by Europeans? (5 cr.)

ALGEBRA.

(50 *credits*.)

1. Why is the algebraic sum of $3a+5a+4a-2a-7a$ equal to $3a$? (10 cr.) 2. Remove the parenthesis from the following expression, and reduce the result. (Give reasons for your operation.) $4c^3-2c^2+c+1-(3c^3-c^2-c-7)-(c^3-4c^2+2c+8)$. (10 cr.) 3. What is the greatest common divisor of $16x^2-1$, $x-4x^2$, and $1-8x+16x^2$? (10 cr.) 4. At the close of an election, the successful candidate had a majority of 1500 votes. Had a fourth of the votes of the unsuccessful candidate been also given to him, he would have received three times as many as his competitor, wanting three thousand five hundred; how many votes did each receive? (10 cr.) 5. Given

$$\left\{\begin{array}{l} x+\sqrt{xy}=a \\ y+\sqrt{xy}=b \end{array}\right\}$$ to find x and y. (10 cr.)

NATURAL PHILOSOPHY.

(50 *credits*.)

1. Illustrate by figures the three kinds of levers, and give a familiar example of each. (5 cr.) 2. Define the center of gravity, and show how the center of gravity of a body may be experimentally determined. (15 cr.) 3. What is conduction of heat? Why are steam chests and steam cylinders often covered with wood? (5 cr.) 4. Illustrate by a diagram the law relating to the intensity of light at different distances. (5 cr.) 5. Describe the syphon, and explain briefly the principle on which it acts. (5 cr.) Water is flowing through a syphon; what would take place if the pressure of the atmosphere were removed and afterwards restored—(1) when the lower end

of the syphon is immersed in water, (2) when it is not? (10 cr.) 6. Why is the breath visible at some temperatures, and not at others? (5 cr.) 7. State the difference between the electro-magnet and the magnet, and their resemblance. (10 credits.)

PHYSIOLOGY.

(50 *credits*.)

1. Describe the different parts of the eye, and state the office of each. Why should sudden transitions of light be avoided? (10 cr.) 2. What are the physiological effects produced by suffocation? How would you proceed in restoring a drowned person? (10 cr.) 3. Describe the situation and uses of the liver, the larynx, and pancreas, and name the different digestive fluids. (10 cr.) 4. Give the construction of the joints. (10 cr.) 5. Explain the different parts of the brain, and give your opinion of the effect of excessive mental exercise in childhood. (10 cr.)

NATURAL HISTORY.

(50 *credits*.)

1. To what natural orders do the following useful plants belong: Alfalfa? Alfileria or "Peri Grass"? the Orange? Cotton plant? Rye? (10 cr.) 2. Describe a crustacean, and compare the lobster and wasp. (10 cr.) 3. Name the classes of vertebrates. (10 cr.) 4. Name five kinds of flowerless plants. (10 cr.) 5. How does the fruit of the cocoanut differ from that of the strawberry and pine apple?

CONSTITUTION OF U. S. AND CALIFORNIA.

(25 *credits*.)

1. How do constitutional governments differ from others? 2. In case of the death or removal of the President and Vice-President of the United States upon whom would the duties of President devolve? 3. Who must decide in a controversy between a United States law and a law of the State of California? 4. What are the duties of Cabinet officers, and by whom are they chosen? 5. Name the departments of our State government, and the principal officers.

SCHOOL LAW.

(25 *credits*.)

1. What constitutes a legal certificate? 2. What is the penalty for non-conformity to the law prescribing the Text-books for public schools? 3. In what cases may a teacher appeal to the State Superintendent? 4. Has the teacher a right to abridge, or to change the length of the daily school session? 5. Are the "Rules and Regulations" of the State Board of Education binding, and why?

INDUSTRIAL DRAWING.

(25 *credits*.)

1. Draw some object illustrating Perspective. 2. Make a design for a carpet or oil-cloth. 3. Draw a ground plan for a simple building. 4. Draw and shade a cube and a cylinder. 5. How would you encourage original drawing in a school?

MUSIC.

(25 *credits*.)

1. Write three bars in 4-4 time, key of C, using eight different kinds of notes. 2. Write the same, using the corresponding rests in place of notes. 3. Define the terms, Allegro, cres., staccato. 4. What is used to increase the capacity of the scale? 5. Write two octaves in E major.

BOOK NOTICES.

APPLETONS' SCHOOL READERS. First, Second, Third, and Fourth Reader. By William T. Harris, A.M., LL.D., Superintendent of Schools, St. Louis, Mo., Andrew J. Rickoff, A.M., Superintendent of Instruction, Cleveland, Ohio, and Mark Bailey, A.M., Instructor in Elocution, Yale College. New York: D. Appleton & Co.

It is seldom that great expectations are so completely realized as in the appearance of this series of school readers. The national reputation of the authors, combined with the high rank impressed on all publications bearing the stamp of the Appletons, caused us to anticipate books of the highest character.

The greatest meed of praise we can bestow, and in a review of these books, we can use unstinted praise, is that they fulfill every condition of the perfect school reader. To us the most prominent feature of this entire series is their perfect adaptability to the comprehension of children of the age for which each book is designed. This feature is as noticable in the First as in the Fourth Reader.

The reading matter is of almost infinite variety. A considerable proportion, on many subjects, all interesting to little folks, was evidently written especially for the series by Mrs. Rebecca D. Rickoff. The volumes of *St. Nicholas* have evidently been laid under contribution, and have yielded up some of their choicest treasures. Old and loving friends, like Lucy Larcom, Mary Mapes Dodge, Marion Douglass, Louise M. Alcott, E. C. Stedman, Daniel De Foe,

Whittier, Longfellow, Bryant, Charles and Mary Lamb, and a hundred others, greet us with familiar faces from every page.

One of the first elocutionists in our country assisted in the preparation of these books; and we are spared the forty or more pages of introduction, which scarcely one teacher in fifty ever uses, and but one pupil in a thousand pays the slightest attention to.

Prof. Bailey evidently understands how good reading may be effectually taught. At intervals through the fourth book of the series are short, practical, and interesting chapters on emphasis, stress, inflection, etc., etc. Another valuable feature of the series is the regular system of spelling lessons; still another, the exhaustive system of questions on the reading lessons; still another, the lessons in script and letter writing.

The type in which the books are printed is large and clear: they are well bound: the illustrations are copious and of superior execution: the light color of the covers presents a cheerful appearance. We cordially advise California teachers to examine these books.

A number of prominent Western educators, including several of national reputation, such as Supt. Stevenson, of Cleveland, Ohio, and E. T. Harvey, author of Harvey's Readers, are engaged in making a thorough revision of the McGuffey Readers.

Books Received.

The following books have been received, and will be reviewed at an early day.—[EDITOR.

FROM SHELDON & CO., NEW YORK.

THE ELEMENTS OF RHETORIC AND COMPOSITION. By Prof. D. J. Hill.

THE ELEMENTS OF BOOK-KEEPING. By Joseph H. Palmer, A.M.

THE ELEMENTS OF NATURAL PHILOSOPHY. By Elroy M. Avery, Ph.D.

FROM PAYOT, UPHAM & CO.

A LEGACY. By Miss Muloch, author of "John Halifax." New York: Harper & Bros.

THE SCHOOL AND THE FAMILY. By John Kennedy. New York: Harper & Bros.

THE STUDENT'S FRENCH GRAMMAR. By Charles Heron Wall. New York: Harper & Bros.

HAND-BOOK OF NATURAL PHILOSOPHY. By W. J. Rolfe and J. A. Gillet. New York and Chicago: Potter, Ainsworth & Co.

FROM A. L. BANCROFT & CO.

HAMMERSMITH.—HIS HARVARD DAYS. By Mark Sibley Severance. Boston: Houghton, Osgood & Co.

FROM CENTRAL PUBLISHING CO., ST. LOUIS.

QUESTIONS AND PROBLEMS IN ELEMENTARY PHYSICS. By C. L. Hotze.

FROM SOWER, POTTS & CO.

THE NORMAL UNION ARITHMETIC. Parts 2 and 3, and the NORMAL HIGHER ARITHMETIC. By Edward Brooks, A.M., Ph.D.

FROM ADAM MILLER & CO., TORONTO.

ELEMENTARY ARITHMETIC ON THE UNITARY SYSTEM. By Thomas Kirkland, M.A.

THE SEPTEMBER MONTHLIES.

Harper's Magazine for September, with the two serial stories by Black and Hardy, representing the best work of these two great novelists; three brilliant short stories by Mrs. E. W. Latimer, Rebecca Harding Davis, and Rose Terry Cooke; a dramatic sketch of thrilling interest by T. B. Aldrich, with three admirable illustrarions by Abbey; a humorous sketch by Charles D. Deshler, entitled "Ab'm: A Glimpse of Modern Dixie," illustrated by Pyle; an illustrated poem, of pathetic interest, "The Foreclosure of the Mortgage," by Mrs. E. T. Corbett; other poems by Ruth Dana and Harriet Prescott Spofford; several illustrated articles, covering a variety of subjects; timely articles of great and immediate interest to all readers, including one of special interest to teachers, entitled "The School-Mistress," by Mary P. Thacher; and the five admirably sustained editorial departments, is an exceedingly rich, beautiful, and entertaining number.

The poetry in the September *Atlantic* is even better than the usual high average of that magazine. John G. Whittier contributes "The Vision of Echard," Oliver Wendall Holmes "The Silent Melody"; and there are several other poems of considerable beauty and merit. There are several chapters of Henry James' excellent serial, "The Europeans"; "American Finance from 1789 to 1835," by John Watts Kearney; T. S. Perry reviews "Some French Novels"; Horace Scudder begins a new story, "A House of Entertainment"; William F. Apthorp has an exceedingly interesting musical article, "Additional Accompaniments to Bach's and Handel's Scores"; "Count Shouvaloff," by Axel Gustafson; "Primitive Communism," by Arthur G. Sedgwick; Richard Grant White contributes his fourth paper on "Americanisms"; Gen. Francis J. Lippitt contributes "Pope's Virginia Campaign and Porter's Part in It"; "The Contributors' Club," and Recent Literature finishes the number.

The September *Scribner* opens with a short poem, "Ready for the Ride." The illustrated articles are "Hunting the Mule-Deer in Colorado," by J. H. Mills; "The Engadine," by Gen. Geo. B. McClellan; the second paper on "To South Africa for Diamonds," by W. J. Morton; "Glimpses of Western Farm Life," by Maurice Thompson; "A Spool of Thread," by Charles H. Clark; and the serial, "Roxy." Bret Harte has a short poem, "Miss Edith makes it pleasant for Brother Jack." Some other articles noticably good, are "Nights and Days in Concord," by Henry Thoreau; "College Fellowships," by Charles F. Thwing; and "The Transportation Question," by Stephen D. Dillaye. On the whole, this is a very fine number, keeping well up to the high standard and interest of the mid-summer number of last month.

The current numbsr of *St. Nicholas* is pervaded with the spirit of the season. Near the beginning is an interesting short article on "Mackerel-fishing." "My St.

George," is a strong, exciting story of the sea, admirably illustrated by Alfred Kapps. There is also a good story by Emily H. Leland entitled, "How Lilly-toes was Caught in a Shower," and a series of very funny cuts, called "How He Caught Him," representing a queer fisherman's difficulties with his "catch." The number opens with an exquisite little poem by Celia Thaxter, entitled "Fern-Seed"; Susan Coolidge has an excellent story, "The Fox and the Turkeys," illustrated with a picture from Gustave Dore; Thomas Dunn English contributes a long fairy-tale, with two striking pictures by E. B. Bensell; and C. P. Cranch, Samuel W. Duffield, and Mary E. Bradley, have each a fine illustrated poem. Still another feature is a paper by Prof. W. K. Brooks, entitled, "How Birds Fly."

A specialty in late numbers of *Appleton's Journal* is short stories, finished in one or two numbers, and by first-class writers. The principal articles in the September number are "The New York Post-office," by Leander P. Richardson; "The Trundle-Bed, a poem, by John James Piatt; "In Paraguay," by Carlos Sansom, with six illustrations—Paraguayan Figures, River-Boat, Paraguayan Shanty, Carrying Farina, Girls Dancing, Taking "Mate"; "The Old House," a poem, by Will Wallace Harney; "A Leap-year Romance," A True Tale of Western Life, in two parts, Part I. by G. Stanley Hall; "A Strange Experience," a story, complete, by Lucy C. Lillie; "Voices of Westminster Abbey, conclusion, by Rev. Treadwell Walden; "At Your Gate," a poem, by Barton Grey; "A Voyage with the Voyageurs, by H. M. Robinson; "The Minstrel-Tree, a poem, by Paul H. Hayne; "A Bit of Nature," an American story, in twenty-three chapters, by Albert Rhodes, Chapters XIV to conclusion; "Otsego Leaves," III. The Bird Primeval, by Susan Fenimore Cooper; "French Writers and Artists," III. Edouard Manet, by William Minturn, and the usual departments.

The September *Lippincott's Magazine* sustains its high rank among the first-class monthlies. In fact, this magazine has month after month shown steady improvement. The following are the principal articles for September: "Our Visit to the Desert," by J. P., illustrated; "Modern Kashmir," by Edward C. Bruce, illustrated; "For Percival," a novel, illustrated; "The Boy on the Hill-Farm," A Sketch, by Mary Dean; "The Vision of the Tarn," by John B. Tabb; "Through Winding Ways, a novel, by Ellen W. Olney; "Personal Sketches of Some French Literateurs," by Arthur Venner; "His Great Deed," a story, by Rebecca Harding Davis; "A Day at Tantah," by E. S.; "Across Strange Waters," by Louise Chandler Moulton; "C. G.: or, Lilly's Earrings, a story," by Sherwood Bonner; "An English Teacher in the United States," by D. C. McDonald, and the usual entertaining "Monthly Gossip."

Littell's Living Age is a weekly containing nearly double the amount of reading matter of the JOURNAL, and published in the same form. It contains the choicest selections from the European magazines, including such serials as Black's "MacLeod of Dare." The Subscription price is but $8 per year, and it represents an amount of magazine literature which $40 will not purchase elsewhere. Littell & Gay, Boston, are the publishers.

The September-October number of the *North American Review* is to contain an article entitled, "Is the Reformer any longer Needed?" by George W. Julian, and a paper on "Civil Service Reform," by John Jay.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR PRIMARY SCHOOL WORK. Edited by Mrs. H. M. SOLOMONS. [Bush St. Primary School, S. F.]

SUGGESTIONS FOR HIGH SCHOOL WORK.

Composition Writing.

At the June examination for teachers, applicants were required to explain their methods for teaching composition and letter writing to young pupils. In examining the answers given, I invariably found that more stress was laid upon devices for supplying the pupils with thoughts than upon the kinds of instruction to be used to secure their proper expression. In other words, the applicants seemed to think

the chief difficulty of the pupil would be a lack of ideas. I am inclined to think this opinion is erroneous, particularly if the subject is well chosen. If it becomes necessary in an exercise in composition to give instruction on the topic, the mind of the pupil must necessarily be divided between two separate lines of work—the matter and the manner. The result will of course be inferior to what it would be if the entire mental strength were concentrated in one direction. One thing at a time is as good a motto here as anywhere else. It is sufficiently difficult for the average child of ten or twelve years of age to form sentences correctly, and to combine them in well-arranged paragraphs to require all his mental force; any distraction will be at the expense of accuracy or felicity of expression.

I am frequently led to believe that teachers fail to definitely comprehend what teaching composition implies. They too often award praise to that exercise which is most entertaining, rather than to the best written one. Pupils of all ages should be taught that the best composition is the one which contains the best arrangement of words into sentences, and sentences into paragraphs. Good thoughts awkwardly expressed reminds one of a bungling workman making a cabinet of rosewood. With young pupils particularly, too much attention cannot be given to sentence-building. The teacher should show by his remarks and suggestions that this is the only point to be considered. If the pupil can only acquire facility and accuracy in this one direction the main difficulty is mastered, and composition writing ceases to be the bane and dread of school-day life. On the contrary, it becomes a perpetual source of pleasure, a pleasure which arises from a consciousness of power. The pupil then is like the skilled workman who thoroughly knows his tools and how to use them. In a little time the young writer will be able to satisfy his ideal in regard to style, and then his ability to write and his judgment of writing will go hand in hand, and he will not be as too many are, fair critics but bungling composers.

J. B. McC.

Oakland High School.

The Study of Zoology in the High Schools.

THIRD PAPER.

SUB-KINGDOM III. ARTICULATA.

A good degree of enthusiasm for the work, based upon practical knowledge and observation, is necessary to success in teaching the beginnings of this division of zoölogy, as indeed to any.

None but the most unaspiring would be content to teach entomology from a mere book-knowledge. Every one who has tried to do so must acknowledge a mortifying, but inevitable failure. A living subject, it requires active, living methods.

Here opens a field, wide as the world itself, in which child and man may always find something new and delightful; in which he may learn to see both with the eye of the body, and the eye of the soul, myriad variety in unity; through this, fitness, purpose, wisdom, which, applied to his own aims and acts, will be of good to him in higher directions.

Let the first lesson of the course be an informal talk on articulates, devoted mainly to awaking an interest; many of the forms classed under this division are already known to most children, and their own knowledge of them may be made a large factor in the interest at the beginning, to be kept up through the course. Draw from them general facts, known to them by observation, in this way finding out how much or how little they do see. Let one of the leading aims in this work be to teach boys and girls *how to see—how to*

notice what they see, and *how to tell* what they have seen.

Without levying at all on his own stores of knowledge, the teacher ought to draw from the pupils at the first lesson the common names of the leading classes of articulates—insects, spiders, crabs, worms, etc.; also the differences which occur to them, at the moment, between these creatures and what we mean generally when we speak of animals. Then the definition of the sub-kingdom, as already given, and the names of the six classes of articulates may be talked over and explained.

The second lesson may be a formal lecture on the class Insecta—topics as follows: What true insects are; their office in the economy of nature; useful insects; harmful insects; distribution in time and region; importance of the study of entomology, and mention of industries, in which this knowledge is absolutely necessary to success; value to the country of the services of such names as the entomologists Le Conte, Walsh, Walker, Packard, Newport, Riley, etc.

Show them that, according to certain characteristics, true insects are divided into groups, called Orders. Let the class mention names of creatures which they think conform to the definition as discussed by them before; beetles, bees and ants, flies, butterflies, bugs, dragon-flies, etc., etc., should be examined by each, and their more obvious characteristics mentioned. Let this be followed in the next lecture by the classification given below—without explanation of terms, at the time, leaving this until each is taken up in detail.

On no account, allow *verbatim notes to be taken*, except when it is desirable to give some quotation. Put upon the board, carefully, all synopses, and see that these are copied into the note-books—in print, if possible, so that they may be convenient for reference. Do not require much attention to scientific names at first—or at all—but use such as it is thought best should be learned, frequently, yourself; a few learned each week—as *used only*—will soon give the students a surprising readiness and familiarity with the more important, and without much expenditure of force.

When the life-history of some famous insect, as the Colorado Potato Beetle, the May Beetle, the Army Worm, or the Silk Worm is given, require the pupil to commit to memory their scientific names.

In the next paper will be given the con-

			Orders.
Sub-Kingdom III. Articulata, Class I. Insecta (germina.)	1. Metamorphoses, distinct; pupa, inactive.	1. Mouth, mandibulate; four wings, outer pair, horny	I. Coleoptera (Beetles).
		2. Mouth, mandibulate; four wings, posterior pair, smaller	II. Hymenoptera, (Bees and Ants).
		3. Mouth, haustellate; anterior wings, membranous; posterior, abortive	III. Diptera (Flies).
		4. Mouth, haustellate; four wings, covered with scales	IV. Lepidoptera (Butterflies and Moths).
	2. Metamorphoses, distinct; pupa, variable.	5. Mouth, mandibulate; four equal wings	V. Neuroptera (Dragon-flies).
	3. Metamorphoses, distinct; pupa, active.	6. Mouth, mandibulate; four wings	VI. Orthoptera (Grasshoppers, Locusts, etc.)
		7. Mouth, haustellate; four wings	VII. Hemiptera (Bugs, Cicadas, Katydids, etc.)

tinuation of the work, beginning with the study of Order I. The reader will please to excuse the dictatorial tone of the article in the present number, as directness and limited space seem to render it unavoidable.

IRENE HARDY,
Oakland High School.

SUGGESTIONS FOR PRIMARY SCHOOL WORK.

Variety.

The great bug-bear of school-life is monotony. The teacher finds the routine of work always the same thing; and the pupils certainly find it monotonous, for the burden of instruction is always, repeat, repeat, repeat.

In higher grades the lessons are more interesting to both teacher and pupils, and the greater variety of studies pursued, also tends to modify the sameness to a great extent.

But in the primary classes, where there is only reading, writing, and the rudiments of numbers, it is incumbent upon teachers to break the monotony of her routine as much as lies in her power.

This can be done by varying the manner of conducting recitations each time.

A teacher with tact and judgment can vary her methods so that the children will scarcely realize that they are studying the same thing as yesterday and the day before.

Take, for instance, reading. In the low eighth where charts and blackboards are used, lessons can be varied *ad infinitum*.

To-day the pupils can be given words to find on chart, blackboard, or book. To-morrow, the teacher points to words, and requires them to be pronounced and spelled. Next day a word may be taken, and the pupils required to say something about it. The sentences thus formed, written on the board by the teacher, remain to form the following day's lesson in spelling and pronounciation. Another time, let different pupils go to the board and form new sentences from these by pointing to different words, which the class will read. An ingenious teacher will constantly find some new form in which to present the lesson.

Then in arithmetic, what an immense variety can be given to the form of work! After going through the formulæ of Grube, much drilling is required to fix in the memory the results of the different combinations; and here monotony is the enemy of progress, for, when children become tired of an exercise, they lose their interest in it; and in this branch it is most important that their minds should never tire, for no amount of study in the higher grades can ever make up for want of habitual accuracy in combining numbers which can only be learned by effective drill in the lowest grades.

EDITOR PRACTICAL (PRIMARY) DEPARTMENT: I object to the Grube Method, and the principal ground of my objection is, that the four principles of addition, multiplication, subtraction, and division are taught together.

Young children should have but one idea presented to them at a time. When that is thoroughly digested, it is time enough to present another. Addition and subtraction can be taught in connection with each other to advantage; as also multiplication and division at a more advanced period of mind-development, but to teach all four together to children of as tender years as the Grube is meant for is, to my mind, absurd. I also submit that once 1 is one, $1 \times 5 = 5$, $5 \times 1 = 5$, $5 \div 5 = 1$, $5 \div 1 = 5$, is too abstruse for little five-year-olds.

CITY TEACHER.

The signs of thoughts are so intimately associated with thought itself, that the study of language, in its highest form, is the study of the processes of pure intellect.—*Everett.*

THE PACIFIC

SCHOOL AND HOME JOURNAL.

ORGAN OF THE

STATE BOARD OF EDUCATION,

For the Publication of its Proceedings.

VOL. II. SAN FRANCISCO, OCTOBER, 1878. No. 8

A LEARNED WOMAN.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

No. I.

Dr. Johnson once remarked to Mrs. Thrale that he well remembered the time when a woman who could spell a common letter was regarded as all-accomplished.

Sydney Smith, in answer to the request of a mother for advice respecting the education of her daughter, recommended the study of French, Italian, history, geography, English literature, arithmetic, "not further I think than compound division—and I shall earnestly endeavor to make her very dexterous in the operations of subtracting, adding, multiplying, and dividing." This was all which that eminent man thought necessary for women to learn.

Girls were not admitted to the Boston public grammar schools till 1789. From that time till 1828 they were allowed to attend half the year—from April 20th to October 20th—room being made for them by the absence of boys who were taken away to work for their parents during the spring and summer. Since 1828, ample provision has been made for their attendance all the year. The first girls' high school opened in Boston, as an experiment, and was soon discontinued, because so many girls applied for admission that the School Committee were frightened at the probable expense. It was re-establish-

ed in 1852, at first with a course of two years, then of three years; and now some 550 girls are pursuing advanced branches in a magnificent building, which, with the land, cost about $350,000. I think you have more pupils in the San Francisco Girls' High School;—but since the enlargement of Boston there are now six other high schools attended by both sexes; and last of all, a Latin school, for girls exclusively, has just been opened, to which forty have been admitted to be prepared for college. Opportunities for obtaining a higher education are now offered to women in colleges and in other ways.

Surely, a great change has come over the notions of men in relation to the education of women—and I rejoice to see it;—for woman should have equal opportunities with man to explore the field of knowledge and to develop her intellect.

I make these preliminary remarks, because Mrs. Ripley, the subject of this sketch, enjoyed none of the advantages which are now so abundantly extended to her sex. Her remarkable attainments in literature and science were made at a time when it was thought girls needed only a little schooling, and when the idea of their advancing beyond the most elementary branches was pronounced absurd. No high school or college opened its doors to her. She laid the foundations of her extensive knowledge of languages, philosophy, literature, science, and mathematics, when the aids to study were few and defective. A good dictionary of Latin or Greek did not exist in English; editions of the ancient authors were rare and often very imperfect; while of the modern languages, except the French, scarcely anything was known in all New England. But the difficulties in the way did not prevent her acquiring rapidly, and with sufficient correctness, a knowledge of the Latin, Greek, French, and Italian languages, and subsequently the German—with the literature of all of which she became familiar. I once carried to her house a German, who was teacher of the German language in Harvard University. The evening was spent in conversation. After we had left, he exclaimed to me, "What a wonderful woman! She knows much more of German literature than I do. I was almost afraid to open my mouth!" When she began the study of German, the only dictionary she could obtain had the definitions in the Russian and the French languages; and this she used for years. Spanish also she studied in her last years. Her proficiency in mathematics won the commendation of Professor Benjamin Peirce, of Harvard, and she felt a lively interest in the progress and the discoveries of modern science. In her early life she read Scott's novels; later, she read very few novels, if any. She would never read a newspaper, and she took no interest in politics, except in regard to the slavery question, and when the war most tragically forced itself upon her attention. I don't know whether her own library ever contained more than a hundred volumes,—but these were the very best books in the languages which she was reading, and these she studied until she had thoroughly digested and assimilated their contents. The best thoughts of the best writers fed and nourished her mind, which became profound, capacious, and vigorous, comprehending with easy grasp the most abstruse subjects. Deciding as she did by a comparison with the best standards, her cultivated taste was delicate and correct, and from her judgment upon the literary merits of a work an appeal could not be safely made. Was she not wise in preferring the few, best dishes to the multitude of scraps on which so many minds starve? She had a masculine mind with all the charm and sensibility of woman. When I first knew her, she was, I think, interested in the study of Greek

and German metaphysics, but all knowledge was welcome. Her stores increased daily, and at the time of her death she was probably the most learned woman in America.

While indulging her ardent thirst for knowledge, and broadening and deepening her mind by the perusal of the best authors, in so many different languages, she willingly undertook the performance of duties that alone were enough to occupy all her time. She conducted the education of six younger brothers and sisters, to the three youngest of whom she stood in the place of a mother, and after her marriage superintended her household with the skill and habits of personal labor needful to New England women of limited means. To the ordinary duties of her station were added those of assisting her husband in the care of a boys's boarding-school, both in house-keeping and teaching. While hearing recitations in Latin or Greek, she was often busy in mending clothes or stockings. And amid all the activity of her busy life, the love and habit of acquiring knowledge, which were the life of her age as of her ardent youth, kept even pace.

I have selected Mrs. Ripley as my subject, not merely on account of my personal interest in her—having been her pupil for two years—not solely for the love and admiration I bear her, but because I would present her to girls as an example of what a soul hungering and thirsting after knowledge may accomplish in spite of all obstacles, with the hope that it may inspire them to endeavor to do likewise.

Mrs. Ripley's maiden name was Sarah Alden Bradford. She was born in Boston, in 1793, and was the eldest child of Gamaliel Bradford, a sea-captain, a descendant of Gov. Bradford, of Plymouth renown. She attended a school taught by a Mr. Cummings, of whom she speaks as "my old school-master, to whom I owe the foundation of all I know worth speaking of." Her teacher asked her one day if she would like to study Latin. It was a fortnight before she could make up her mind to ask her father's leave; but one day she came home and with great timidity said, "Father, may I study Latin?" Her father laughed, and exclaimed, "A girl study Latin! Yes, study Latin, if you want to. Study anything you please." This was opening the door into a wide field.

Here are a few extracts from letters written when she was between the ages of sixteen and twenty, to an intimate friend:

"I am delighted to hear you do not desert our old friend Virgil. In pathos of sentiment he is unrivalled; he is acquainted with every avenue to the heart. His epic abounds with the most affecting pictures of filial love and heroic friendship.

"I have finished Homer's Odyssey, and wish to read the Iliad very much.

"I like many of the Idyls of Theocritus better than Virgil's Bucolica. I long to read to you an Idyl I am now studying, a dialogue between two gossipping women on their way to some public show.

"I am very much interested in Tacitus at present. He has a manner so pleasant of telling his stories that he is as interesting as a novelist. I am impatient for the time when you shall read him. Where do you think I am writing to you? In my own chamber, which, by the means of a little shoemaker's stove, is as warm as an oven. Some sweet ingredient is each day mingled in my cup. For all these blessings I cannot be grateful enough to kind friends, and to Him who has given me these friends.

"I have before me a rare banquet of reason and taste, if I had but leisure to enjoy it—Butler, Tasso, Sophocles, and Euripedes.

"I have begun Stewart's philosophy. How multiplied are my sources of enjoyment! [Then follows a criticism of the work.]

"With what majesty and sublimity Milton's old-fashioned epithets grace his style! They remind one of the rich brocades and substantial ornaments of our grandmothers, contrasted with the gauze and ribbons of modern bards.

"I have commenced the study of German, and am still pursuing botany.

"I have found a French work on Chemistry and natural history in five volumes, perfectly intelligible, and am up to the mind's elbows in carbon."

Yet fond as she was of study she did not evade the lowliest household task which duty or affection laid upon her. She instructed her brothers and sisters, preparing the former for college, and also superintended and took part in all the household work.

"I have been so busily engaged in mending old clothes and making cambric bonnets, that I have not had time to read, write, or scarcely think, except about my work.

"It is washing-day and I must run and fold my clothes, so good-bye. . . . I study or read morning and evening, when not prevented. How we might improve these long winter evenings together!"

How these extracts put to shame the careless and indolent student! And what an example of perseverance, self-denial, and cheerfulness she presents to all who pursue knowledge under difficulties!

INTERNATIONAL MEASURES.

THE ENTIRE SYSTEM IN A SINGLE SENTENCE.

Measure all lengths in meters, all capacities in liters, all weights in grams, using decimal fractions only, and saying deci for tenth, centi for hundredth, milli for thousandth, deka for ten, hekto for hundred, kilo for thousand, and myria for ten thousand.

This sentence comprises the entire system; for surfaces and bulks are simply the squares and cubes of the measure of length, and the "ar" and "ster" are only other names for the square dekameter of land, and the cubic meter of firewood.

The meter (measure) is one ten-millionth of the distance from the equator to the pole, and equals the distance from the tip of the fingers to the centre of the opposite breast. Four steps equal three meters. The width of the hand is a decimeter; and of the fingers, two centimeters. The liter (capacity) is simply the cube of a decimeter (tenth measure) in the more convenient cylindrical form; and the gram (weight) is simply the weight of a cubic centimeter (hundredth measure) of water.

Meaning.	*Spelling.*	*Pronunciation.*	*Illustration.*	*Abbreviation.*
length	meter	meeter	like gas meter	m.
capacity	liter	leeter	as in pique	l.
weight	gram	grăm	as in dram	g.
tenth	deci	dĕsĭ	like decimal	d.
hundredth	centi	sĕntĭ	like cent	c.
thousandth	mili	mĭlĭ	like mill	m.
ten	deka	dĕka	like decalogue	D.
hundred	hekto	hĕktō	like hecatomb	H.
thousand	kilo	kĭlō	like chiliad	K.
ten thousand	myria	mĭria	like myriad	M.
To these ten are sometimes added—				
surface	ar	ar	area	a.
solidity	ster	stĕr	stereoscope	s.

The names *meter*, *liter* and *gram*, are from Greek words, understood in all modern languages to mean a *measure* (as a gas-meter, water-meter, etc.) a *capacity* and a *weight*. As the metric system is now used by most nations and will soon be universal, the names understood by all nations are used, instead of *measure*, *capacity*, and *weight*, which would be understood only by the English. For the same reason the fractions are not called *tenth*, *hundredth*, and *thousandth* in English, but by their Latin names *deci*, *centi*, and *milli*. The large quantities, instead of *ten*, *hundred*, and *thousand*, are called *deka*, *hekto*, and *kilo*, the Greek words for these numbers. These words are short, avoid all danger of confusion, are understood by all nations throughthe world, and so are very much to be

preferred. We therefore say not *hundredth measure*, but *centimeter*. Not *one thousand grams*, but *kilogram*, etc.

Each prefix is an independent word, accented on the first syllable, and retains this accent in the compound, cen'timeter not centim'eter, etc. The abbreviation for the compound is simply the letters for the two parts, dm. for decimeter, Dm. (with capital) for dekameter. For shorter names of the compounds, pronounce only the prefix and the first letter of the unit, saying centim, millim, decil, hektŏg, etc. The system will be understood best by remembering that our money is really a part of the metric system. The dollar is *value*, as the meter is *length*, the liter is *capacity*, and as the gram is *weight*. A dekadollar we call an eagle, a decidollar a dime, and the centidollar and millidollar are shortened to cent. and mill. Both the money and metric system correspond perfectly to our arithmetic.

There are no tables, or scales, or complicated relations. With the meter, every possible dimension (length, surface or solidity) can be measured; with the liter, every possible capacity; with the gram, every possible weight. The single sentence above takes the place of compound or denominate numbers in our arithmetic; and as a result large committees of our ablest teachers report that a full year may be saved in the school-life of every child. The gain in commerce is much larger, for a single multiplication or division gives an absolutely accurate result, where the common system requires several operations to get often only an approximate answer.

The metric system, by which so much is accomplished, has now been adopted by twenty-eight different nations, including a majority of the civilized world. In eleven countries it is in exclusive use; and in several, like Germany and France, there are penalties for using any other measures.

This system is now being rapidly introduced into the United States, and within a few years will take the place of the present complicated tables, as dollars and cents have driven out the pounds, shillings, and pence.

ILLUSTRATIONS OF THE USE OF THE NEW MEASURES.

To show that the single sentence above is sufficient for all possible measurements, a few illustrations are given, and with them hints of the most convenient ways of writing and reading metric quantities. It will be seen that having a meter stick and the sentence above, an intelligent man can make for himself a liter and gram, and then in the international measures, now used by nearly thirty countries, can measuse anything.

A piece of cloth ts $5\frac{1}{4}$ times the length of the meter stick. Write it 5m25, and read it 5 meter twenty-five. The rule says measure in meters, using decimals, and call hundredths centi. Nothing but decimals are used, for only decimals are marked on the measures. There is no more difficulty, if one prefers it, in using common fractions, than in our currency, where halves and quarters are common, and even eighths are nsed; 25 was found on the stick itself, which is divided exactly like the dollar, into a hundred centimeters, called *centim*, like our *cents*. There is no occasion to read it 5 meters and 25 centimeters, any more than to add the word cents to the sum $5.25, which is commonly abbreviated to 5 dollars 25. As in the money we seldom use eagles and dimes, so certain metric denominations are seldom used, and no more confusion or loss of symmetry results than in our saying 55 cents insterd of 5 dimes and 5 cents.

The abbreviation of the unit, here m., takes the place of the decimal point, which may be omitted without danger. The number of figures determines the fraction or denomination.

A chain is 7 and 25-1000 meters long. Write 7m025. Read 7 meters, naught twenty-five.

A timber is 123-1000 of a m. thick. Write it 123mm. Read it 123 millimeters (or millim). Or it may be written .m123. In this case use the decimal point or write 0m123 to avoid any chance of reading it *meters* 123, which might be understood as 123 meters.

For very small units the millim. is the more convenient term to use, as we use the thirty-second of an inch, or better the decimals of a foot or inch. For distances less than a meter, the centimeter or hundreth is used. For long distances, where the number of meters would be large, the 1000 meter, or kilometer is used. Decim, dekam, hektom are seldom used.

A sheet of glass is 2-1000 of a meter thick. Write it 2mm. or .m002. The distance between two cities is 48593 meters. 48Km593. Read 48 kilometers (or kilom.) 593.

In weight the thousand gram (kilogram, almost always called kilo) is the common term. Hay, coal, shipping, etc., are weighed by the thousand kilo, which is a ton. The kilo is used in common business, where we use the pound ; druggists use the gram, and for powerful medicines, poisons, etc., the decig., centig., and millig. or milligram, are used. An elephant might weigh 6,000 thousand grams, or 6,000 kilos, for we are to "measure all weights in grams, calling thousand, kilo." A mosquito might weigh 1-1000 of a gram, or a milligram, for we are to call thousandth, milli. The gram being the weight of a cubic centimeter, the kilo is that of a cubic decimeter, and the ton is the weight of a cubic meter of water.

The "g" is seldom added to the abbreviation for kilogram.

In measuring surfaces or solidities, it should be remembered that they are the squares and cubes of the measures of length, and therefore the scale of ten is squared and cubed, and it takes 100 sq. cm. to make a sq. dm., and 1,000 cu. cm. (or cc.) to make a cu. dm. Therefore in surfaces two places, and in solidities three places, belong to each denomination, 46sq-m-8459 means 84 sq. dm. and 59 sq. cm., not 8 sq. dm. 4 sq. cm. 5 sq. cm., etc.

This is nothing peculiar to the metric system, but is the simple arithmetical law, which is sometimes forgotten. Metric quantities being simply tangible arithmetic serve to make the law more clear. It is simply the law of squares and cubes puzzled over in involution and evolution. If the metric square-measure frame or cube-root blocks are looked over for a few minutes, this matter will always be understood.

In capacity, the liter is more used than any of its multiples or divisions. It is almost exactly our quart. For small measures, decil. and centil. are used. For very small quantities, the druggists and chemists have the habit of saying cubic centimeter, or cc., which is simply naming the quantity in linear units, instead of calling it a milliliter.

The liter might be called a cubic decimeter, only it is too long a name. In fact, all the capacity and weight names are only abbreviations for the original length or meter names, and were it not for the longer expression, we should have nothing to learn but the "meter." The kiloliter would be a cu. m. ; the hektoliter would be one hundred cu. dm., etc. The gram would be "weight cc. of water" ; the kilo would be "weight of a cu. dm. of water" ; the ton, "weight of a cu. m. of water," etc. So the metric system is properly named ; for it is simply knowing the one thing, the meter or measure, by which everything may be measured.*—*The Educat. Weekly.*

* For information concerning the great advantages that will attend the introduction of the Metric System, address the General Office of the Society, 32 Hawley Street, Boston.

INSTRUCTION IN MANNERS.

BY MRS. MARY G. MOTT.

[Contra Costa County.]

"We can afford to pay her an extra price, she teaches the children manners," remarked a father, referring to an accomplished lady teaching in his district.

"I supposed all teachers did that," said I, thinking of the State course of study.

"O dear! no;" was the emphatic reply. But the speaker was wrong; every teacher daily gives a series of lessons—object-lessons in fact—in deportment.

Professor Allen says that a large proportion of teachers commit an infraction of the Decalogue by declaring that the State course has been carried out, when music and drawing have been omitted; but each of us may safely lay her hand upon her heart and say that she has taught "manners." What kind of manners, may be a question; but an example has been set that a score of impressible children may imitate for years to come.

Most of us, at stated seasons, make general observations upon propriety of behavior, and, at the time of occurrence, check unintentional indiscretions and impertinences; but the influence of these remarks is trifling compared with the lessons taught by the "daily walk and conversation" of the teacher.

The instructor is in so large a sense absolute monarch of the school-room, that she sometimes forgets that each child is entitled to as great a measure of politeness as an adult, if possible to more; for, to the man or woman, temporary rudeness gives only momentary vexation; while upon the child it may work lasting injury.

So much of reproof and restraint necessarily belong to school-life that everything needlessly unpleasant should be avoided.

A child is an unconscious copyist, often reproducing the tone, the gesture, the slovenly or ungraceful posture habitual with a teacher. If the latter allows herself to say rudely and peremptorily, "What do you want?" "No, you can't!" "What a piece of stupidity you are!" or to unceremoniously snatch a book from a pupil, she may expect to see and hear imitations of her own ill manners on the playground.

An irritable and dictatorial tone of voice will often arouse a feeling of ill-humor in a whole school, and the habit of continual faultfinding, which Mr. Drake happily carricatures in his system of "telephonic reprimands," will surely "corrupt good manners."

Urbanity on the part of a teacher implies no lack of discipline. Cheerful good order is as easily obtained as that sullen compliance with rule while under the immediate eye of authority, which seeks every opportunity for outbreak at the removal of espionage.

A command should never be given when a request will answer the purpose.

Deserved commendation should be promptly and frankly given, showing the pupil that we are as ready to praise as to blame.

Any courtesy of a child should be scrupulously acknowledged.

At the proper time, necessary questions should be civilly answered.

Denials should not be made more disagreeable by rudeness.

The careful politeness of the teacher will meet with a generous return. Be assured that punctilious courtesy sweetens and refines school-life as effectually as it does home-life.

Reproof should be dignified, free from ridicule and from injurious epithets.

Young people, from excess of spirit and thoughtlessness, are tempted to violate the proprieties of houses of worship and public assemblies.

The teacher will of course set a careful

example, when occasion offers, as to decorum; but it is well to talk frequently to pupils about the due observance of propriety, and—taking a hint from Mrs. Griffiths—strongly impress the fact that a gentleman or lady is distinguishable by quiet and respectful demeanor at such places. Explain that whispering and laughing are positive rudeness to a lecturer; and irreverence at church.

Deference to strangers and to the aged is also to receive attention.

In conclusion, morals and manners are so much akin that we naturally teach both at the same time, as the only solid foundation of genuine good breeding is the broad rule, "Whatsoever ye would that men should do unto you, do you even so unto them."

THE YOUNG TEACHER.

BY CHARLES M. DRAKE.

[National City, San Diego County.]

CHAPTER II.

ON THEORY AND PRACTICE.

After Frank had done his chores and eaten his supper, he went to see Mr. Osgood.

"Well, my boy, did you decide what you were going to do?" inquired Mr. Osgood.

"Yes, sir," replied Frank. "I shall go to San Diego; and if I get a certificate, I shall teach school."

"I am glad you have so decided, Frank; for I think you will, in time, make a good teacher. You have had quite a little experience with me as a pupil teacher, and that will be of much service to you. I think no one should be granted a certificate who has not had a certain amount of actual teaching-experience. Let would-be teachers work for a couple of terms under the almost constant supervision of an experienced teacher; and then if any one was deserving, let him pass the examination, and his certificate would then mean something."

"Do they not have something like that at the Normal School?" inquired Frank.

"Something like it," replied Mr. Osgood, "but at the Normal schools they pick the pupils to a certain extent by charging tuition or in other ways; and they rarely have such a variety of classes in one room as we have in most of our common district schools. Then, there are so many graduates every year, and each one has to have his finger in every class a few days at a time, and the educational pudding isn't large enough to give any one of them a good meal."

"Do they not have regular teachers to teach these pupils, also?"

"Yes. The teachers are supposed to give model ways of teaching, and curious models they are at times. At the last school of the kind I visited, the teacher was hearing a geography class recite a lesson on the map of the United States. Pupils traveled from San Francisco, in every direction, over the map, heedless of cañons, mountains and deserts, and not caring for railroads and stage coaches. One pupil, traveling due east, strayed, unreproved, through I*d*wa, Illi*noise* and In*je*ana and at last landed at the mouth of the Dele*ware* river, in such an exhausted condition that his teacher had to help him through New Jersey."

"That reminds me," said Frank, "that I will not be prepared to answer the questions on theory and practice of teaching."

Mr. Osgood smiled and shrugged his shoulders. "It is theory that they will question you about; and queer theories they are that are often advanced at examination times. You have read several books on school government and methods of instruction, besides the articles in my school journals; so you need not fear the paper on theory and practice. Trust to

plain common sense, and your remembrance of the mistakes and successes you have witnessed while you were a pupil, and you will not go far astray."

"Should a teacher buy books on teaching, or should he subscribe for school journals?" inquired Frank.

"Both," emphatically answered Mr. Osgood. "A teacher should always take, at least, one school journal, and should give the preference to a HOME JOURNAL too. Good scientific books should be a teacher's dearest friends. Think of the teachers you know, who neither take a school paper, nor buy books of more scientific value than Jules Verne's novels. Do these men not waste in drink, tobacco or other vices thrice the amount of the books they feel too poor to buy? Such men are not teachers. They are impostors, obtaining money under false pretenses; and I hope to see the day when the use of liquor or tobacco will debar a man from obtaining a certificate, or lose him the one he may have."

"I remember one teacher," said Frank, "whose breath was so vile, that it almost made me sick when he came near me in the school room. He made the floor look like the floor of a bar-room, yet the people were well satisfied with him."

"Popular teachers gain their popularity mainly by their social qualities; and it depends entirely upon what class of people he is popular with, whether it is a recommendation or the reverse. A teacher should so conduct himself, that he will be respected by all fair minded people, and should not trouble himself about popularity."

"Many teachers complain of being scared at examination, and that they were unable to do themselves justice. Do you think that will be the case with me, Mr. Osgood?"

"I think not," said the teacher, smiling. "It is true that timidity may cause the loss of a few credits, but it does not make near the difference that many claim. If you *know* a thing, you can usually tell it; but when you get embarrassed and fail, it is a pretty sure sign that you did not know what was asked. Sickness, does, sometimes, cause failures, and allowance should be made for a person who is unwell; but as plenty of allowance usually is made for both sick and well, it seldom happens that anybody fails who deserves to get a certificate."

After talking for some time about other matters, Frank thanked Mr. Osgood for his advice and bidding him good-night went home.

He told his uncle, with whom he was living, of his determination; and though his uncle said that he would never get a certificate, and it would only be a waste of time and money to go, Frank got a surly promise that he might go to San Diego on the next Tuesday, and stay with a young friend who had formerly lived in that neighborhood. Frank put a few books and clothes in his satchel, and on Tuesday evening reached his friend's house, where he was warmly welcomed.

DETAILED METHODS IN ARITHMETIC.

[An Adaptation of the Grube System, from "Methods of Teaching," as given by MR. SWETT to the Normal class.]

Order of Steps.

I. Counters.
II. Figures.
III. Abstract Numbers.
IV. Practical Problems.

SECOND TERM OF YEAR—*Numbers from 10 to 20.*

1. *Illustration with the Number Nineteen.*

1. Place the counters on the desk.
2. Make marks on the slate or board.
3. Make the figures from 1 to 19.
4. Count forwards and backwards.

2. *Measuring by Counters.*

1. How many *two's* in 19?

2. How many *three's*, etc., to 9?

3. *Addition Table.*

1+2+2, etc., to 19
2+2+2, etc., +1 to 19
3+3+3, etc., to 19
4+4+4+4+3=19
5+5+5+4=19
6+6+6+1=19
7+7+5=19
8+8+3=19
9+9+1=19

☞Put the preceding also into vertical columns.

4. Let scholars make as many combinations as possible equal to 19.

5. Subtraction. Reverse the tables for addition.

6. *Multiplication.*

1×2
1×3 to 19

1×2
2×2 to 9

1×3
2×3 to 6

1×4
2×4 to 4

1×5
2×5 to 3

7. *Division.*

19÷1, 19÷2, 19÷3, up to 19.

8. *Miscellaneous Exercises.*

8+4=12
7+5+6=18
19−4=15
19−9=10
3×6=18
16÷4=4
5+9−7=7
3+3+3−8=1
12÷6=2
17÷4=4, 1 R.
16−12=4
2×2×2=8
17−9+9=17
9+9−11=7
2×3×3=18
4×3+1=12
16÷8=2
18÷9=2
18÷5=3, 3 R.
19÷4=4, 3 R.

Tables to be Learned.

12 inches=1 foot.
3 feet=1 yard.

16 ounces=1 pound.

☞Inch, foot and yard to be repeatedly drawn on the board by pupils. An ounce weight and pound weight must be passed around in the class.

9. *Fractions.*

☞The teacher will illustrate *halves, thirds, fourths*, etc., by breaking of crayons, or by cutting up an apple, or by dividing a line into parts.

1. *One-Half.*

$\frac{1}{2}+\frac{1}{2}=\frac{2}{2}=1$

$\frac{2}{2}-\frac{1}{2}=\frac{1}{2}$ or

$1-\frac{1}{2}=\frac{1}{2}$,

$\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}+\frac{1}{2}=\frac{6}{2}=3$

$\frac{6}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}=0$, or,

$3-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}-\frac{1}{2}=0$

Etc.

2. *Mixed Numbers.*

$2\frac{1}{2}+3\frac{1}{2}=6$

$6=5\frac{2}{2}-3\frac{1}{2}=2\frac{1}{2}$

$1\frac{1}{2}+2\frac{1}{2}=4$

$4-1\frac{1}{2}=2\frac{1}{2}$, etc.

3. *Combinations.*

$\frac{1}{2}+\frac{1}{2}=\frac{2}{2}=1$
$\frac{2}{2}-\frac{1}{2}=\frac{1}{2}$, or,
$1-\frac{1}{2}=\frac{1}{2}$
$\frac{1}{2}\times\frac{1}{2}=\frac{1}{4}$
$\frac{1}{2}\div\frac{1}{2}=1$

$\frac{1}{3}+\frac{1}{3}=\frac{2}{3}$
$\frac{2}{3}-\frac{1}{3}=\frac{1}{3}$
$\frac{1}{3}\times\frac{1}{3}=\frac{1}{9}$
$\frac{1}{3}\div\frac{1}{3}=1$

$\frac{1}{4}+\frac{1}{4}=\frac{2}{4}=\frac{1}{2}$
$\frac{2}{4}-\frac{1}{4}=\frac{1}{4}$, or
$\frac{1}{2}-\frac{1}{4}=\frac{1}{4}$
$\frac{1}{4}\times\frac{1}{4}=\frac{1}{16}$
$\frac{1}{4}\div\frac{1}{4}=1$

4. *Addition.*

$\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}+\frac{1}{8}=\frac{8}{8}=3$

$\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}=\frac{12}{4}=3$

$\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=\frac{10}{5}=2$

☞Send the class to the boards and give 20 similar examples.

5. *Addition.*

$2\frac{1}{2}$	$2\frac{1}{8}$	$3\frac{1}{4}$	$2\frac{1}{5}$	$2\frac{1}{6}$
$4\frac{1}{2}$	$4\frac{1}{8}$	$5\frac{1}{4}$	$4\frac{1}{5}$	$3\frac{1}{6}$
$1\frac{1}{2}$	$1\frac{1}{8}$	$2\frac{1}{4}$	$5\frac{1}{5}$	$4\frac{1}{6}$
$3\frac{1}{2}$	$3\frac{1}{8}$	$1\frac{1}{4}$	$6\frac{1}{5}$	$5\frac{1}{6}$
12	$11\frac{1}{8}$	12	$17\frac{4}{5}$	$14\frac{4}{6}$

☞Send the class to the boards and give ten lessons of 10 examples each.

6. *Multiplication.*

$\frac{1}{2}\times1=\frac{1}{2}$
$\frac{1}{2}\times2=\frac{2}{2}=1$
$\frac{1}{2}\times3=\frac{3}{2}=1\frac{1}{2}$
$\frac{1}{2}\times4=\frac{4}{2}=2$
etc.

$\frac{1}{3}\times1=\frac{1}{3}$
$\frac{1}{3}\times2=\frac{2}{3}$
$\frac{1}{3}\times3=\frac{3}{3}=1$
$\frac{1}{3}\times4=\frac{4}{3}=1\frac{1}{3}$
etc.

$\frac{1}{4}\times1=\frac{1}{4}$
$\frac{1}{4}\times2=\frac{2}{4}=\frac{1}{2}$
$\frac{1}{4}\times3=\frac{3}{4}$
$\frac{1}{4}\times4=\frac{4}{4}=1$
etc.

$2\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{1}{8}$	$5\frac{1}{8}$	$3\frac{1}{4}$	$2\frac{1}{4}$
2	3	2	3	3	4
5	$10\frac{1}{2}$	$4\frac{1}{8}$	16	$9\frac{3}{4}$	9

7. *Division and Multiplication.*

$1 \div 2 = \frac{1}{2}$	$\frac{1}{2} \times 2 = \frac{2}{2} = 1$
$1 \div 3 = \frac{1}{3}$	$\frac{1}{3} \times 3 = \frac{3}{3} = 1$
$1 \div 4 = \frac{1}{4}$	$\frac{1}{4} \times 4 = \frac{4}{4} = 1$
etc. to 10ths.	etc. to 10ths.

8. *Decimals.*

☞Not to exceed tenths.

.2+.2=.4	.3+.2=.5	.4+.3=.7
.4—.2=.2	.5—.2=.3	.7—.3=.4 etc.

Send the class to the boards and give ten lessons each containing ten similar questions.

9. *Addition.*

.2	.5	1.2	1.3	2.2
.3	.6	1.3	1.4	3.3
.2	.4	1.5	1.5	4.4
.7	1.5	4.0	4.2	9.9

☞Send the class to the boards and give similar examples.

10. *Multiplication.*

.2×1=.2	.2×4=.8	.2×7=1.4
.2×2=.4	.2×5=1.0	.2×8=1.6
.2×3=.6	.2×6=1.2	.2×9=1.8

☞In the same way take .3 .4 .5.

11. *Addition of Common and Decimals Fractions.*

(1)	(2)	(3)
$\frac{1}{2}$=.5	$2\frac{1}{2}$=2.5	$1\frac{1}{2}$=1.5
$\frac{1}{2}$=.5	$3\frac{1}{2}$=3.5	$1\frac{1}{2}$=1.5
$\frac{1}{2}$=.5	$4\frac{1}{2}$=4.5	$1\frac{1}{2}$=1.5
$1\frac{1}{2}$=1.5	$10\frac{1}{2}$=10.5	$4\frac{1}{2}$=4.5

12. *Table.*

10 cents=1 dime.
10 dimes =1 dollar

☞Pass a dollar, a dime, and a cent around the class, and give easy practical questions. Make the sign of dollars, and give simple questions in adding dollars and cents.

Institute Poem.

BY CHARLES H. SHINN,

[Niles, Alameda County.]

[Read in Oakland before the Alameda County Teachers' Institute.]

I look across your beaming faces,
O men, and women, wise in books;
I have a thought of quiet places,
Of quiet schools in shady nooks,
And by the glad, responsive brooks,
And in the midst of all the charms
Of rural towns, and pleasant farms.
Your blackboard's fading figures tell
Of conquered sums, a withered flower
Lies on the floor; a dream-like spell
Rules every school-room at this hour.

What do we here to-day,
Here, in this new and hopeful land
Where happy futures, as glad angels, stand
With eyes of promise? Here our gentle bay,
Low-singing, weaves her many smiles
By rocky heights and gleaming isles;
Here, slowly building, hour by hour,
Her homes of peace, this city stands,
Holding the keys of growth, and power,
And long dominion in her hands;
Here newer songs await the singing,
New stories shall be clearly told,
And snow-white marble, in the quarry clinging,
Shall some day soon be wrought
To the pure statue of a thought
Clear as the stars, and cold;
Here palaces of cedar shall uphold
Their wondrous tracery,
And over all our heights shall temples be,
Built of pale marble in the perfect air,
Above the murmurs of our summer sea,
Thenceforth to move men with divine despair.

Here, then, with happy hearts we bring
Our reverential offering
And autumn sheaves of grain.
What is there left to do, or gain?
We pant with infinite desires
That urge us on as signal fires
Kindled on lonely summits, when the vast
Expanse of heaven is overcast.
For we are watchers of the land, who hear
Dangers, as armies, creeping near;
And we are shepherds, in the wave-worn hills,
Keeping our wandering flocks with rare delight,
And we are garden-folk, beside the pleasant rills,
Where children, as sweet flowers, seek the light.
What are we not? Of every human art,
And universal nature we are part,
Watching the toilers in their gloomy mines,
The farmers on the sunlit lea,
The hunters climbing thro' the ancient pines,
And laughing maidens in the russet vines,—
All this to teach the things we see.
And we have learned to love the spell
Of every dainty bell

Low-singing to the starry night
With such a rare delight
That earth itself is as a palpitating breast;
Then every human flower
Is but a germ of power
And teaching of all earthly labors is the best.

But ah! it is not long
That we are happy thus, and strong;
Daily, in our accustomed place
We meet hard questions face to face,
With problems we are oft perplext
Which not this generation, or the next
Can wholly solve, for, as an open book,
We ought to read and analyze each look
And map each child's futurity
With an unfailing science. Lo! we stand
Children ourselves, whilst unexplored, a land
Rises in terraces above the sea.
And we may find, on lonely mountain capes,
Vast temples full of spirit-moving shapes,
And, in the trembling solitudes,
Diviner oracles than of Dodona's woods.
We are not on an island pent;
Of living, growing, climbing, is no end;
It is a mighty continent,
With endless skies above us bent,
And sky and sea, forever sweetly blend;
For teaching first began
With the first child of toiling man,
And it shall last till, as a story told,
Man's finished archives are together rolled.

Our best work is but little after all,
Our sweetest songs are frail and poor,
And we must live on broken hints that fall
From heaven's faintly-glimmering door,
The world-wide dreams we had in earlier years
Are past, or slowly perishing,
Sometimes we hardly see our path for tears,
Sometimes the mist divinely clears
And joyous birds begin to sing;
But yet the singing times are few,
The flowers have lost their morning dew
And no more skies are perfect blue,
And no more seas chime as they used to chime
In youth's young prime.
And no more mountains, near at hand
Seem as the gates of fairyland.
Yet, as we weave the growing hours,
The children to our hands are clinging,
And little ones are daily bringing,
Their lives and budding powers;
What we have lost they must not lose,
If we chose wrong must rightly choose,
Where we were weak, they must be strong,
And clearly see where we were blind;
So love and faith shall not wait over-long
But melt at last in chords of trembling song,
And each young life its full fruition find.

HYGIENE OF THE SCHOOLS.

BY DR. H. M. FISKE.

[San Francisco.]

THE ARCHITECTURE OF SCHOOL-HOUSES.

Few of you will have anything to do with the building of school-houses, or the erection of any structure that may be used for educational purposes. But your opinion as teacher may often be asked by those in authority as to the proper modes of ventilation, lighting, and general arrangement of the building for class purposes. It is well then that you know many of the faulty points about structures now in use. The importance in a sanitary point of view—of their location and surroundings cannot be overlooked, and the multitudinous questions to be asked, and points to be settled, will all be clearer and freer in your minds, if studied from an objective standpoint. And these standpoints will continually thrust themselves before you during your educational life. Do we not know when we build our school structures, that the health and wealth of future generations are dependant greatly on the guidance of the architect, who knowing should do all things well?

The majority of school structures are ill ventilated, their sites are badly selected, their pipes badly plumbed, their walls illy whitened, and their lights badly arranged, so that neither light nor shade are in proportion. The continual crossing and recrossing of the rays of white light are not only detrimental, but positively destructive to the healthy action of the optic nerve, and cerebral nerve centres. School buildings should never be arranged so that the sunlight can enter simultaneously

every window in the room—as the converging and diverging rays are so intense that myopy (short-sightedness) and color-blindness are almost sure to follow in a greater or less number of cases. Near-sightedness is alarmingly on the increase among the school population here—much more so here than in the Eastern States. In Berlin the matter of lighting school-buildings has been taken under the immediate control of the government. In some buildings, large green shades have been placed near the windows, so that waves of green light have displaced the white, while the amber-colored tints adorn the sashes, sills, and doors of each and every department of the building. Chemosis, or as the ancients called it, the yellow tinted eye, a species of conjunctivitis in which all objects appear with a yellow tint, and which by its very nature is destructive to the inner membranes of the eye, is often caused by the great irradiation of heat and light from walls so intensely white, that naught interferes between the intense glare and stimulus of the white light, thus intensely reflected, and the delicate, sensitive membranes of the organ; so sensitive that in operations on the iris not the thousandth part of an inch of its own structure is allowed to overlap or underlap itself for fear of disastrous consequences. Several cases of the kind have been reported by the San Francisco oculists as having occurred in their practice among the school population of this city during the past year. Teachers can often prevent great injury to the eye and ear of the sensitive, delicate child by proper protection, or covering to those parts when leaving the building. The school-houses are often so built (especially in this climate) that the north wind blows continuously into their main entrance, so that on the least exposure there of the heated body the highly sensitive membranes of the eye and ear are exposed to sharp and sudden innotations of sound, and sudden changes of temperature when the body is unduly heated. Thus we have inflamation of the middle ear, long-continued colds, and extreme depression of nerve force in the ear, which is productive of dullness of hearing, then the full deafness, and death or degeneration of the tympanum. Among school children this is no uncommon malady. Its victims are numbered by scores in this State. The eye, with its multitudinous secreting and sensitive membranes, is fully as liable to these sudden changes, and more intensely repays the wrong-doer for so gross a violation of nature's laws.

THE REGULATION OF HEAT.

Another thing that requires constant attention from teachers is a due regulation of the heat in their rooms. Most of our buildings are heated with stoves, and these in any class-room are an abomination. Unduly heated rooms are a nuisance. In ninety-nine cases out of one hundred, schools, where stoves are used, cause sickness and death. They roast some and freeze others. Then come colds, pneumonias, rheumatisms, agues and all their terrible train of secundums. Light and heat should be granted in moderate and subdued doses. Light should enter from the top, or the seats and windows should be so arranged that it should pass over the left shoulder. In rooms where there are many windows, and the radiation great, the walls should be tinted gently with green, producing those pleasing, though artificial waves which are so often admired in shop windows, or in looking over long stretches of ocean. Blue lights are inadmissable, on account of their absorptive power and the intense inflammation they are liable to excite in the iris when long exposed to their influence. Color blindness is a very common affection among school children, and much more common

than suspected. It is the result of long-continued use of the eye, especially in study, where the rays of light are allowed to fall parallel with the lines read or studied, so that rooms in which the light enters exclusively on either side, color-blindness to a greater or less extent is almost sure to follow long-continued gazing at spherical objects—such as globes, or the globular phantasmagoria of the tinsel shops. Congreve rockets were first made spherical and painted white. It was soon found that the workmen employed in their manufacture became many of them color-blind and their sight much impaired when the eye was unaided; hence the use of colored screens, made of wire and painted green, which removed to a great extent the obtuseness of the angle of vision. Cosgrove, in his work on man and his relation to inanimate matter, tells of a machine which was invented by the ancients, which, by the concentration of the rays of light upon its fans, was sent spinning around a pedestal at the rate of five thousand revolutions per minute, and such a machine has recently been re-invented by the eminent barrister of London, Mr. Crookes. Now, if rays of light possessing such force are partly interrupted before entrance, by the concave or convex surfaces of mirrors, or millions of objects doing duty as mirrors, in the grasses, glass, or surrounding objects, and thus strike the retina obliquely, through the cells and aqueous humors, and no relief is granted the organ from the counteracting effects of rays from an opposite direction, the destruction or serious injury of many of the optical tissues is apparent. There is no half-way work about the matter, either. The eye must have rest between its weeks, days, and months of intense exertion, and the laws of nature obeyed, and all muscles, humors, cavities and reflecting surfaces, brought simultaneously into play, or diseased conditions are the result.

SOME GENERAL OBSERVATIONS.

Bright things are often well said, and sharp things well done. But in the sum of all things lies the greatest good. So says Aristotle. Thus with you teachers. The sanitary condition of your classes will often depend on you. The little acts which go to make up the great sum of school life often lie in their infinitesimals. Joyousness and mirth, exhilaration and folly are often productive of greater results in a sanitary point of view than tons of drugs or wagon loads of chemicals. No matter where placed, or how thickly distributed around your realm, joyousness, exhilaration, and mirth go together—triple sisters—which enliven the intellect, stir up and remove its stupidity, bring order out of chaos, glory and brightness out of humiliation and depression. Sanctity and strict probity, with a high moral record, are all good things, great things; but if they abound at the expense of those lighter elasticities before mentioned, they will weigh down the soul and depress the activities. Let your action be then to continue all these essentials, and so perfect the being through the medium of these instruments, these eccentricities, that out of a whole will come parts that are amiable and scientific, just and rigorous in manly and mental strength, vivacious and excitable to good things, devourers of good things for the sake of the fat therein contained; and subservient only of that that is bad or of evil repute. The sanitary condition of our rooms should always be attended to, and every violation of well-known health or moral rules, be immediately reported to the proper officials for reform or correction. Let your whole lives aim at correct moral rectitude, for in you and through you will hundreds of minds read the lessons of wisdom or defects which are to govern them in after life. Let no misgivings or detractions from rectitude so ensnare you that those under

your charge will be led to follow your example, or emulate your wrong-doing. There is a tide in the affairs of all which leads either to fortune or to fame, to glory and honor, or dishonor and death. That tide may be at the outset of life. To you belongs the honor of guarding the portals. See that naught enters there that will disturb or annoy those who peacefully dwell within. Neatness in books and clothing has been spoken of before. But the neatness of the mind is of more importance. Bad habits of thought and modes of delivery are among the incompatibles which are met with in youth. Yours the business and the school-room the place to discover and remedy those incompatibles. Weeds will grow in any soil; if they are not checked they will root out the virtues of the true seed. A careful teacher watches these mental irregularities, delves beneath the hidden recesses of youthful intellectuality, and brings forth their excrescences and anomalies, and by right training and proper mental application removes them from the soil and makes it bring forth fruits meet to be used in manhood's or womanhood's after life. The glories of the earth are not of the sun or moon or heavenly planets, but of that brighter, nobler sun—Intellectuality. The clouds that obscure its rays must be dispelled, or removed. The north wind blows, the rain falls, the dews moisten earth, but man's intellect stands higher and nobler than them all.

Teachers, your influence and training do more to develop and strengthen the intellectuality than all other causes combined. Salubrity of climate, the ocean storms, the deluge of winds, and the colors of summer morning, all come and go and leave their impress behind. But your impress, your stamp is greater and more mighty than all. The little word spoken; the little act done; the sweet smile flitting on your face as you enter the class, or the words of welcome and praise you utter, strike deeper into the world's originality and produce more permanent impressions on the arcana of the universe than they all. Sanitary conditions are nothing; power is nothing; hope is nothing; but the teacher's influence is mighty, and will prevail when thrones have tottered into the dust. And when the great seal of educational life, and the thread which you, as teachers, are now spinning shall have worn out, your influence will then be felt, and the power and impress of the mentalities you are now forming will tell on the destinies of nations; will tell in the power and influence that mind has on matter; will tell in the glories that surround intellectuality wherever found. See to it then, my friends, that your mission is not misspent. Then honor and glory will await you in the arduous paths you have chosen.

SCHOOL ETHICS FOR MODERN STATESMEN.

BY JOHN M. EDDY.

[Humboldt County, Cal.]

No. III.

The exigences of the age demand that every person who intends becoming a citizen of this country shall have a thorough knowledge of the power and workings of the Federal Constitution. But, in considering the amount of matter taught and the manner of teaching it, we must not forget that we have accepted the well-informed man as our model, and thus fail to derive a useful lesson in the methods of instruction. He does not burden his memory with the worded form of the Constitution, or with the exact expression of Hamilton's masterly articles in the *Federalist*, to gain an adequate knowledge of the principles of our Government; so, in order to fit a child for the varied responsibilities of ad-

vanced citizenship, it is not necessary that he should memorize the Constitution, or any other instrument that guarantees to American freemen those rights and privileges which they cherish so fondly. A person may have a very extensive knowledge of the worded Constitution without having, to any great extent, entered into the spirit of its intentions. Like the well-informed man, the child should feel the need of this knowledge before acquiring it. Of course, the management of this point presupposes a knowledge of popular government on the part of the teacher. If the instructor has an extensive knowledge of the politics of the country—we use the ancient meaning of this term—he can, by a few aptly-chosen questions and lucid explanations, so illustrate the meaning of the the text, as not only to prove the existence of interesting matter buried in the dry statement, but to awaken the slumbering faculties of the pupil and stimulate him to self-reliant investigation. But beware of feeding the child too much. The mental stomach is more delicate than the bodily one. A surfeit of undigested knowledge works greater mischief than a too hearty dinner. Knowledge should never be acquired in greater quantities than can be readily assimilated ; as in striving to obtain present proficiency we will unavoidably inflict permanent evil.

Admitting that the orignal intention of our schools is to elevate the standard of citizenship ; and, further, allowing that the people must, in some way, be instructed how to wisely govern themselves, then the value of history as a means for producing this end will at once be seen. History is a reflection of past experience, and must ever play an important part in the guidance of the future. It broadens the understanding, hardens the judgment, and generates patriotism. It furnishes us with innumerable lofty ideals, which are valuable perquisites in the formation of character. It tells us of the mistakes of the past, and points out the road to failure, if it does not the road to success. It is an invaluable civilizer, and to it civilization owes its most marked advances. It is an epitome of the world's progress, and is ever prompting us to renewed action. But of all the text-books now used in our schools those claiming to be histories of the United States are most unattractive and least calculated to accomplish the result intended. Instead of creating a love for the records of the past, and developing in the child an admiration for true nobility and typical manhood, their influence is usually the exact reverse, and serve only to chill his ardor, blunt his appreciation, and disgust him with everything that bears the name of history. From history we might draw our great prototypes of action, thought, ambition, that would spur us on and direct our endeavors, did but a single deserving book of the kind exist ; but we have never seen such a one. Most of them contain a catalogue of dates, a record of many battles, the names and deeds of a few early explorers, and a few other dry details too unimportant to classify. But that undercurrent of struggle and determination, reverse and failure, prosperity and adversity, by which a whole people strive and sweat through the various stages of progress up to civilization and moral independence, has never been outlined on paper. Carlyle calls history "philosophy teaching by experience." Does the whole experience of past ages belong to great names? Are we in greater need of war teachings than the teachings of peaceful progress? The great events in history are but a small part of the world's progress. They belong to the province of *effect* rather than *cause*. What does it signify if the Declaration of Independence was signed on the fourth day of July, 1776? Does that represent the origin and growth of liberal thought in America? Is it more important to know

when Sumpter was fired upon than why? Prominent actors who execute the will of the people reap great glory; but is it their due or the struggling masses' who prompt them to it? Let us have a history of the whole, not a part; a history that shall teem with the doings of men. Unbiased let it be, yet warm and life-like. A book of real experience, that will shadow our future. Which merits most our respect, the conquering Greek that wept over his final triumph because there was nothing more to slaughter, or that nameless boor who turned the tide of barbarism, and on the ruins of grim, desolate war, laid the foundation of sweet, smiling peace by first hammering his battle-axe into a ploughshare? "Well may we say that of our history the more important part is lost without recovery, and—as thanksgivings were once wont to be offered for unrecognized mercies—look with reverence into the dark, untenanted places of the past, where, in formless oblivion, our chief benefactors, with all their sedulous endeavors, but not with the fruit of these, lie entombed."

Again, the manner of teaching what little history we have as generally followed is enough to condemn its use. Pupils are required to commit a specified number of dates or unimportant events to memory, all of which they are very careful to forget while they are committing the next lesson. This may be considered a good discipline to the memory; but we prefer to train the memory to better habits, and exercise it with knowledge that shall be both permanent and useful. A person following any of the common avocations of life who attempts to memorize more than *one hundred dates* in American history, is not a responsible person, and should at once be placed in the custody of some benevolent institution. Let the instructor not forget that a few general facts well impressed, are of more worth than a multitude of facts committed only to be forgotten.

A RECITATION REGISTER.

BY A. C. BLOOMER.
[San Francisco.]

It is not our desire, at this time, to discuss whether a teacher should keep a daily record of his class. We venture to assert however, that all teachers worthy the name, keep some kind of a record to mark the daily progress made by their pupils. Let teachers keep a record, so that each pupil may know just what he did in a certain lesson on a certain day. Wells on "Graded Schools," gives our ideas so exactly, that we give his language. "A judicious use of the Class-Book, in which a record is made of the pupils standing and progress from day to day, is one of the most important instrumentalities that teachers can bring to their aid in securing punctual attendance and an elevated standard of scholarship and deportment. The consciousness that these elements of character and scholarship are permanently recorded, is an abiding and potent influence with every pupil who has not lost *all* self-respect and all regard for the good opinion of his friends.

"No other agency has yet been devised, which is half so effective as this in preventing the necessity of resorting to corporal punishment in school. If a teacher *created* the necessity for corporal punishment, even in a single instance, he would be regarded as unworthy to retain his office. If he can, by a proper use of school records, *lessen* the necessity for punishment, and neglects to avail himself of this means, how much less culpable is he to be regarded?

"In the grammar grades, the results of these records should, if practicable, be sent to the parents of the pupils at the end of each month. The salutary influence of these frequent *reckonings* with pupils in the presence of their parents, cannot be over estimated.

"In the primary grades, also, these records should be made to bear directly and constantly upon the character and progress of the pupils. Frequent and pointed allusions should be made to them, for the purpose of stimulating exertion and checking irregularity. At the close of every day or week, the names of all the children that have not been marked for bad conduct, may be read before the school; and at the close of each month, the names of those who have attained the highest "rank" may be printed on the blackboard. By these and other similar means, a gentle pressure of influence may be brought to bear at all times upon the children, which will serve as a substitute for more than half the corporal punishment that is now inflicted by teachers who have not learned the use of school records."

"As a general rule, the teacher, as well as the merchant or man of business, who keeps his accounts in a loose irregular manner, and seldom posts his books, is the one most likely to meet with failures, without knowing the cause." There are various modes used by different teachers. Some use cards with the name of the pupil written thereon, and weekly or monthly place the totals from the cards in a class-book, in this way some teachers avoid (?) keeping a daily register. But the importance of keeping a daily standing of each pupil in each study is admitted, and the only or true reason why class records are not used by more teachers, is this: "It takes too much time; too much writing is required."

We know from experience that much time is saved by the use of "The Recitation Register," a sample sheet of which is given on this page. The sample is to to illustrate one month for two pupils. A book the size of the State Register, is large enough to hold six names on each page; and if both sides are used, the space across, when the book is open, will serve for three months. The only writing necessary would be to record the names of pupils; and place the numbers in the col-

RECITATION REGISTER.

Daily Record of Attendance, Scholarship and Deportment of.....Grade.

Names of Pupils.		Studies.	SEPTEMBER, 1878.																					Average.	Examinations.	Rank.
			2	3	4	5	6	9	10	11	12	13	16	17	18	19	20	23	24	25	26	27				
			M.	T.	W.	T.	F.	M.	T.	W.	T.	F.	M.	T.	W.	T.	F.	M.	T.	W.	T.	F.				
Noia	(1.) Mary *	1																								
		2																								
		3																								
		4																								
		5																								
		6																								
Warren	(2.) Edward	1																								
		2																								
		3																								
		4																								
		5																								
		6																								
		7																								

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umn, marked, "studies"; the book is then prepared for three months. This same amount of writing is required each month, at present.

In recording the "names of pupils," the alphabetic order should be followed, and the number of the pupil placed beside the name, as it is very convenient to call pupils by their numbers, instead of names. In schools or classes having more than one grade, the names of pupils in the same grade should be recorded together in a regular order, *i. e.* on the same page. The line marked * is to be drawn; it shows how many spaces are used by each pupil, so if one class uses four spaces, or seven spaces, there will be no blanks between names, as all spaces can be used; and if this same line be drawn with a lead pencil across the book it will aid the eye of the teacher very much to discern the space of each pupil.

The column marked "studies," is for writing the numbers corresponding with "names" as:

1. Attendance,
2. Reading,
3. Spelling,
4. Geography,
5. History,
6. Grammar,
7. Arithmetic,
8. Algebra,
9. Philosophy,
10. Physiology,
11. Rhetoric,
12. Geometry,
13. Botany,
14. Deportment or checks.

These numbers or studies should be recorded in the same order in which they are recited. 1, stands for attendance, and should be the first. 2, Reading, and if it be the first lesson in the morning, it has the second place in the column; if Arithmetic be the first lesson, then mark it 2, etc. Where lessons alternate, use one space for the two studies. It will be observed that figures occupy less space, and can be more quickly written than the words they represent.

At the close of the month, the general average monthly standing should be made out, and in this column, space, attendance, the whole number of days attendance, should be recorded, whole number of days absence, and whole number of tardinesses, are recorded in columns for Examinations and Rank. Most teachers have monthly written examinations, having Arithmetic one week, Geography the next, and so on, until the close of the month, when the class will have had examination in nearly all the studies; the result of the examinations is to be placed in the space for the same.

Rank is intended to show the standing one pupil has in relation to other pupils in school studies. Any scale for marking can be used, but the more common is from 0 to 10, 10 being very seldom used, 9 indicating an excellent recitation, 8 a fair average lesson, and the one more commonly used.

This explanation of the system will be more clearly understood by the diagram on the previous page. If teachers will try it, they will find that it will save them much work, besides enabling them to keep an accurate and systematic record of their classes.

EDITORIAL DEPARTMENT.

Hints for a State Course of Study.

It appears to be conceded that the vital educational question is not so much how to teach, as what is to be taught.

Our course now requires the teaching of language, arithmetic, geography, and history. Under language, may be included reading, writing, spelling, grammar, composition, and word-analysis.

Instruction in these branches should be materially condensed. There is no place for grammar and word-analysis in the course of study of a district school. Geography and history should be taught in connection with reading, and should take but one-third the time now allotted them. In addition to reading, writing, spelling, composition, arithmetic, and a little geography and history, botany, drawing, physiology, and physics are of primary importance, and should be taught in every elementary school in the land.

The reader, not a teacher, may think such a course as we have briefly hinted, more extended than the one now authorized.

This is not so. We propose so great a saving in the amount of grammar, word-analysis, geography, and history, that the course suggested will be not more than two-thirds as cumbersome as the old.

The conditions of modern life require but few things of our schools; but they demand that those few shall be done well.

Children must be taught to read. This sounds like a truism, so trite as to be wearisome. Yet reading is taught less than a majority of teachers suppose. To read is not, parrot-like, to repeat words. It is to convey thoughts and living pictures from mind to mind.

Let children be taught to read, so that this will be accomplished, and one-half our school work is done.

Children must be taught to see.

What is an education worth, which leaves the perceptive faculties entirely untrained? Herein lie the great value of botany and physics, and their superior claim to a high rank as common school studies; they cultivate the power of close observation, and give that readiness and self-reliance to the student which enable him to know a thing because he sees it.

As a mental discipline, these branches are superior to geography and history, and equal to the mathematics.

Drawing is another branch of primary importance. Its value as an educational factor cannot be overestimated. It trains the eye as well as the hand. Even the most elementary exercises, systematically pursued, train in habits of promptitude and accuracy.

Children must be taught to think.

Here, again, the immense value of the natural sciences is apparent in their stimulating influence on the human mind. The study of nature produces in the mind such vivid images, that the attention is easily concentrated and retained, thought awakened, and the powers of comparison and a correct judgment developed.

The course of study of the State of California provides for instruction in all these branches. But it requires so many subjects in addition, that instruction in the branches we consider of the greatest importance, is altogether nominal.

The remedy we have already indicated. The number of studies should be reduced; those retained should be greatly condensed; and regular and systematic instruction should be given in botany, physiology, physics, and drawing.

If teachers generally are not competent to give such instruction, they should by the most earnest and continued efforts endeavor to improve, and make themselves capable.

We know whereof we speak, when we say the day is rapidly approaching when some such changes as we have indicated, will be made in our course of study. The press and the people demand the change; and from the district school teacher to the professor in the State university comes the same cry: Let us teach less language and more science.

A Point for the Higher Education.

Many intelligent and conscientious people attack the higher education because, so say they, it tends to train boys above their station.

Now who shall decide what, in this republican land, is to be a boy's station? From constable to president we have more than a quarter million rulers! To-morrow the boys of to-day will form the rank and file of this great army.

Too much education, forsooth! Would Mr. Frank M. Pixley, editor of the San Francisco *Argonaut*, who is one of the representative men who prate of too much education, entrust his own private concerns to a majority of his nation's rulers? Would he

bring these rulers within the shadow of his household tree, or make them at home in his own family circle ?

Decidedly not; and why?

Not because they are dishonest, but because as a class they are uneducated and unrefined. He will not find in our rulers that broad and liberal culture which should, in a greater or less degree, characterize all who are set above their fellows. He will not find even a moderately correct knowledge of the history and government of the country they serve. He will not find ordinary intelligence on topics of every-day occurrence. He will find ignorance and its accompanying boorishness. He will find a fawning servility to the rich and powerful, and an overbearing insolence to the poor and unknown. He will find dishonesty in trifles, springing not so much from lack of principle as from the absence of the refining influence of a liberal culture.

Let Mr. Pixley go into the City Hall of any city or county in this State, and then truthfully say that we are educating too much. Let the office-holding army pass in review before him. Out of a hundred public officials, he will find perhaps a dozen whose education and culture would secure them a position of trust in his individual employ, or admission to the circle of his intimates.

If there were no other argument in favor of higher education than this, that it refines and elevates those who, in a democracy, must rule their fellows, then that alone would constitute a strong claim upon the State for a liberal culture of the masses.

The Functions of Educational Journalism.

The *N. E. Journal of Education* and the *Educational Weekly*, of Chicago, are both ably conducted educational weeklies. They are a credit not merely to their respective sections, but to the whole American teaching profession which they represent, and which they do so much to refine and elevate. But with all the respect the JOURNAL has for its elder and abler brothers, it cannot reconcile its ideal educational journal with the model presented, first in a short editorial in the *New England*, and recently in a more elaborate and not less able article in the *Weekly*.

The *Weekly* is usually pointed, practical, and logical: in its editorial on "Educational Journalism" we are unable to see any of these valuable qualities.

The assertions first demanding attention are:

> . . . "It is surprising that educational journals hitherto have persisted in hugging so closely to the shore of the theory and practice of teaching, especially when the remark has been heard so long on every hand that educational perioidcals are wearily narrow in their limits and monotonous in their matter." . . .

Now, surprising as it may seem to our versatile contemporary, we believe that "hugging the shore of the theory and practice of teaching" is precisely the function of the educational journal. The educational journal is established for two distinct ends: to represent the sentiment of teachers on matters connected with their profession, and to enable them to keep up with those improvements which are constantly being made in methods of instruction.

The educational journal has a field as special as the medical gazette or the law periodical. It caters to a special demand—the desires of a special class for a certain kind of knowledge interesting to them by reason of their profession. How few teachers would find the continuous perusal of a law journal interesting! How few lawyers can read with patience even a single number of a medical magazine! Did our contemporary ever attempt a careful and thorough reading of a stair-builder's manual? So we believe it a logical conclusion, that special publications are of no interest but to those for whose benefit they are published. And we think we are equally safe in asserting that when teachers take up an educational journal, they hope and expect to find instruction on their professional topics, and information on educational progress.

And right here, let us ask both the *N E Journal* and the *Weekly* a few questions.

If a teacher wishes to cultivate a taste for art, can they, under the most favorable circumstances, supply his demand half as well as the *Art Journal* or the *Aldine*?

If he wants to read up in science, will they undertake to do for him what is done by the *Popular Science Monthly* or the *Scientific American*?

If in morals and theology, will they compete with the *Christian Union* or the *Independent*? If in politics, political economy, or history—with the *North-American* or the *International Review*? If in general literature—with *Harper*, *Scribner*, the *Atlantic*, or *Lippincott*?

The *Weekly* says further:

. . . "What subject is there of prominence in politics, morals, society, science, literature, in which the teacher ought not to be interested, and interested in a more deep and general way than other persons? There is no such subject; and it is unquestionably the duty of every periodical which pretends to minister to the highest needs of the teacher to present to him as fully as possible all subjects which should command the attention and the sympathy of the highest culture, patriotism, and philanthrophy." . . .

We are willing to admit that the complete educational journal may do all these things; but the weekly or monthly that makes the attempt, will soon assume most forbidding encyclopædic dimensions. Common sense has, consequently, suggested a division of labor whereby the teacher may wander in the green paths of fiction in "his lighter hours," by reading his *Harper*, or take up his educational journal to while away "his darker musings" in reading "The Grube Method."

One point more before we close. The *Weekly* goes on:

. . . "Character and intelligence in the teacher are infinitely higher than the mere technics of his art; and that educational journal is a poor excuse that does not minister to the former as well as to the latter." . . .

Does not the teacher possess both "character and intelligence" before entering on his life work? If not, is it possible for the best educational journal to give the one or supply the other?

Let our friends the educational weeklies be contented with their sphere. It is a noble and useful one. And if they find they are growing "wearily narrow in their limits and monotonous in their matter," the remedy is obvious. Let them secure new writers, and more of them. Let them give that variety to subjects which comes from looking at them from a thousand different standpoints. Let them display more vigor in their general management. Let them discuss fearlessly and honestly the scores of subjects they now dare not mention.

So, brothers in educational journalism, you will soon find an abundance of material for your own pens, and a great variety and richness from those of your contributors.

Non-Sectarian Instruction in the Public Schools.

The following extracts from a lecture delivered in San Francisco, by Rev. Henry Ward Beecher, are at once a demonstration of the kind of moral education required of our system, and a triumphant defence of the free schools against all their enemies. Mr. Beecher said:

Not only must the schools exist in amplitude and everywhere, but they must be the citizens' schools and not the schools of the poorest, nor of the Church. They must be non-sectarian schools. I will not be taxed that my child may be educated in the lore of the Buddhist, and he shall not be taxed with my consent that his children shall be educated in the lore of Christ, for he does not believe in that. I will not permit my children to go back to the time of Moses and stay there in the bulrushes of antiquity, and I will not compel the Israelite to pay a tax for having his child taught in the creed of Christianity, for he does not believe in it. Fair play for everybody. It is not right that the Roman Catholic should have his children instructed in Protestant opinions in the common schools any more than it would be, if they were in the majority, that Protestant children should be obliged to learn out of the missal of the Roman Catholic Church. There is no way but this—our schools must be unsectarian. We are met on the threshold that they are Godless, therefore. So they are. It is not our business to teach about God in the common school. We teach a man a carpenter's trade. We teach him nothing about God. Is carpentry Godless? We teach a man medicine without having anything about the catechism in the medical school. We teach men law in law schools, and we do not think we cheat him because we do not teach him theology there. There is in modern society division of labor, and it is the duty of the household and the Church to teach religion. You cannot introduce what is called creed religion or church theology in the common schools, where there is a mixed population, without injustice and

wrong. If we neglect the education of our children at home, and if we neglect it in the churches, then we do educate godlessly, but we do not if we educate in the common school, which is an instrument for a different purpose. But it is thought by many that a child ought to learn in this early apprehensive period, when his mind is open, his moral relations. I think so too. I teach that a child ought to be taught morality; but do you know that there is no sectarianism in morality? Where are sects founded? In the clouds, where nobody understands anything. It is when you have sublimated religion and undertaken to give the mind of God all that God ever thought or did, for which we are not yet anywhere qualified by one hundred or a thousand years; it is when you undertake to bring down what is eternal, and weave it in the loom of your imagination; it is when you have carried that up until it requires the acutest mind trained and drilled to distinguish between the A and B of theology—it is there you get out your Armenianism and Calvanism; that is where you get at your subtle creeds that drive men asunder; that is where organizations fight with organizations selfishly; that is where ordinances are in play; but about the ten commandments there is no difference, neither in America nor in Asia nor in Europe nor in Africa. The ten commandments are universal, and men do not quarrel about them. The substantial elements of living rightly in this world — living truly, faithfully, conscientiously—all these things can be taught in the common school without violating any man's conscience, and they harmonize perfectly with any man's study. Morality should be taught in the common school and theology in the church. It is said you cannot teach morality without a foundation for it. If it is said that all morality has a foundation, I say yes; but if you say it cannot be taught without expanding that foundation, I deny it. Wheat grows productively to the farmer without his knowledge of how it grows.

PROGRESS.

The increase in the circulation of the JOURNAL since September 1st, is greater than during any previous month since the issue of the initial number.

We are doubly pleased with the continued prosperity of the JOURNAL, partly because it shows that our labors in behalf of education are recognized and appreciated by all who are really entitled to be classed as teachers; and because it enables us to improve the JOURNAL, and bring it nearer our ideal of a first-class educational periodical.

We have made arrangements whereby contributions will be published from the most eminent educators in California, including professors in the State University and the Normal School.

The PRACTICAL DEPARTMENT will hereafter be discontinued, and the writers for the several divisions will contribute to the body of the magazine.

Instead of that department, we shall introduce the following new features, which, we doubt not, will prove both popular and useful.

A SCIENCE RECORD, containing a brief summary of scientific progress and discovery during the month, will immediately follow the Editorial Department. Then will come a RECORD OF ART AND GENERAL LITERATURE, which will be devoted to those topics.

A NEWS RECORD will follow, where in brief paragraphs we shall give the principal events in the world's history, bringing our records up to the 24th of each month.

We believe these departments will be of practical benefit to the teacher in his daily work.

Many events of world-wide importance are constantly taking place, concerning which teachers should instruct their pupils.

The daily paper, essential as it is to every intelligent, knowledge-loving mind, is only glanced at for a few salient points, and then thrown away and destroyed. The daily paper is generally read in too much haste to enable the teacher to make the news therein contained the text of a lesson in oral instruction.

A smaller number of the most important points, read at leisure, and forming the basis of a weekly or monthly lesson, would prove of great benefit.

At least one illustrated article will be published monthly, and arrangements have been made for better illustrations than heretofore.

In this task of improvement we have undertaken, we trust to have the hearty co-operation of the teachers of this Coast. Each one whose eyes rest on these lines can do something.

If you meet with any difficulties in teaching or discipline, question those of wider experience through the columns of the JOUR-

NAL. If you have devised newer methods of imparting knowledge, or securing attention, let your co laborers have the benefit of your ability and your succ ss.

We earnestly, then, invite contributions, on all subjects cognate to education, from the teachers of this Coast. Let none hang back by reason of diffidence. Teachers with a liberality characteristic of the Coast, with a broadness peculiarly Pacific, have built up an educational journal, whose sole object is their good. Let them aid in making that journal harmonize with the other productions of this grand and beauteous land—let it be aspiring as our snow-capped mountain peaks; bearing harvests of intellectual wealth like our rivers; as our oaks and pines, sturdy in defence of a cultured progress; as free from stain or taint as myriads of our mountain streams, or the glaciers of our Sierras; and broad as the mighty ocean which laves the shores of our favored land and gives us its name of peace.

Children's Love of Science.

Our own experience as a teacher is, that children take more interest in learning about the principles of elementary science, than in any other subject presented to them.

They show a delight in giving a simple, little experiment in gravity or atmospheric pressure, which no amount of grammar or geography ever evokes.

If we teach them science, we have their complete, undivided attention from first to last.

Acknowledgment.

For the recent very gratifying increase in our subscriptions, we are indebted mainly to Supt. Augustine and T. P. Ashbrook, of Marin; Supts. Gilson, Campbell, and Prof. McChesney, of Alameda; Supt. Bateman and Profs. Towle and Sutphen, of Solano; Supt. Edsinger, of Amador; Supt. Houchins, of Colusa; Supt. H. A. Morse, of Siskiyou; Miss Maria F. Dickinson, of Contra Costa, besides a host of others who have each sent us a few names.

Journalistic Quarrels.

We see that the *Chicago Weekly* has inaugurated a vigorous warfare against the *N. E Journal of Education;* and the indications are that the readers of both journals will be treated to some specimens of what hard things educators can say of each other.

We are sorry for this. Do not our editorial brethren realize that their readers take but little interest in such quarrels, and that they can use their space to much better advantage? Besides, these petty squabbles are undignified, and tend to degrade the profession. What can these gentlemen expect of teachers, whom it is their aim to instruct and elevate, when they set such an example?

Bury the hatchet, gentlemen. The field of educational journalism in America is wide enough for you both.

If you can't agree, disagree with brevity and dignity.

Kindergarten.

The article on the Kindergarten, prepared for this number of the JOURNAL, has been crowded out. We wish to say, however, that a Kindergarten has been established in San Francisco. At the suggestion of, and through the influence of Mr. Felix Adler, of New York—who visited our city and gave some interesting lectures—a subscription was started—principally, we believe, among the German residents of the city, in sympathy with the Kindergarten system, and a sufficient fund raised to warrant the opening of one class. The subscribers organized under the name and title of the "Free Kindergarten Association of San Francisco," with a President, Secretary and Treasurer. A room and furniture was secured, a teacher engaged, and the school opened with seventy-five to eighty applicants. Forty-five have been accommodated—and a few more will be—as soon as more seats are ready. The pupils range from three to five years of age. None are to be retained over six years old,—and the chil-

dren of wealthy people are excluded, so long as there are plenty from the lower and middle classes, to crowd the room. Miss Smith, the teacher was trained under Mrs. Marwedel, now in Oakland, and is an enthusiastic and thoroughly sympathetic teacher. She is succeeding well, and will soon show what virtue there is in Kindergarten training for children of four years of age. We trust and believe she will, if she has half a chance, show that it has so much merit that it ought to be quite generally introduced and sustained. We shall give a more extended notice of the school and system in a future number.

STATE BOARD OF EDUCATION.

The State Board met in the office of the State Superintendent, on Monday, Sept. 23d. Present: Dr. Carr, and Superintendents Mann, Gilson, Dunbar, and Davis. Absent: Governor Irwin, Prof. Allen, and Supt. Chipman and Landes. Gov. Irwin being absent, on motion of Supt. Dunbar, Supt. Mann was elected Chairman.

The minutes of the meeting, held July 23d, were read and approved.

Life Diplomas were granted to the following, on the recommendation of the State Board of Examination:

Miss H. Featherly, Mrs. H. A. Wise, Amelia H. Hamill, Katie B. Childs, Georgia Persing, Maria E. Laird, Marie F. Dickinson, Miss C. T. Buckman, Miss A. C. Robertson, Mrs. S. B. Daniels, W. W. Woodbury, D. S. Knight, Alice C. Gregg, Amelia A. Cory, Mrs. C. S. Walter, Elisha Brooks, Albert Young, Orie Baker, John J. Conolly, David F. Henning, A. M. Chadwick, E. R. Brooks, L. L. Brown, Mrs. A. C. Tierman, F. E. Darke, Mrs. Hattie Williams, George F. Mack, Rebecca Spencer, G. E. Thurmond, Mrs. P. J. Blackwood.

Mr. Davis offered the following resolution:

Resolved, That the Sec'y. of the Board be requested, in calling a meeting of the Board, to notify the members of the business to be transacted at the meeting called. Carried.

An amendment was offered, that members of the State Board should notify the Secretary of any matters they propose to bring before the Board. Carried.

The Board then adjourned until Thursday, at 3 P. M.

CORRESPONDENCE.

The following interesting letter from one of our ablest and most experienced teachers, is an interesting *resume* of visits made to the schools of different parts of the State, and comments thereon. In the main we think, the writer has obtained an accurate and correct idea of what our schools are doing.—[EDITOR JOURNAL.

Having, during the last five years, taught and traveled extensively in the Eastern States, we speak advisedly when we say that, in point of excellence and system, the Public Schools of California are second to none in the United States.

For the purpose of comparing our schools with those of the East, we devoted one month of our vacation to visiting the schools of San Jose, San Francisco and Oakland. We will speak of the schools in the order visited.

The schools of San Jose show a daily attendance of about 1,600, with about 40 teachers. The City Superintendent is Mr. J. B. Finch, an efficient teacher of long experience, and the right man in the right place. The course of studies prepared by him, is an excellent guide for all teachers, and especially for the inexperienced, in showing them just what to teach, and how to teach it. The fruits of his labors and care are seen in the striking uniformity in the methods of teaching observable in all his schools. The schools are just what an able superintendant an a capable corps of teachers are able to make them.

There are in the San Francisco schools about 28,000 pupils in daily attendance, with 700 teachers. Supt. A. L. Mann, and his deputy, D. C. Stone, are well qualified to supervise their extensive charge, as each has had a long and successful experience as able and thorough teachers. They are quick to detect and correct any error in methods in teaching, and their Course of Study for their schools should be in the hands of every teacher desirous to know the best methods of instruction. The discipline, class, and school movements are excellent, rendering the infliction of corporal punishment a thing of rare occurrence.

The Girls' High School, whose Principal enjoys a national reputation as an educator, is one of the largest and best in the Union, numbering more than 800. There is a large Normal Class from which have gone out many graduates, who are making successful teachers in different parts of the State.

The schools of Oakland show a daily attendance of about 5,000, with about 110 teachers. The Supt. is Mr. F. M. Campbell, who, as both an educator and organizer has but few equals, whose whole soul is in his work, and who spares no effort to bring his schools and teachers up to the highest standard of excellence.

The High School, under its able Principal and his efficient corps of assistants, is doing thorough work, as was shown by every recitation witnessed by us. The Oakland schools are a credit to the city, the School Board, and teachers.

By a small portion of the Press of this State, it is charged that our public school system is radically defective, that instead of fitting our youth for the activities and duties of life, it unfits them for grappling with its problems, that they are rendered effeminate, that extravagant expectations impossible to realize are raised, that aversion to manual labor is engendered, that every pupil shadowing forth ordinary promise of brain power is filled with the notion that he is cut out for one of the learned professions.

That there is a foolish, a sickly pride which regards labor as something at all harzards to be shunned, we admit: but we assert that it is not the fruit of our school system; the cause is traceable to doting mothers, with exagerated estimates of their children's abilities, to silly notions of parents generally, that their sons and daughters are too good for the drudgery of the kitchen and field. Looking back for over more than a quarter of a century to the time of our first school, to to the schools and school systems then, and comparing the schools and methods of to-day with those of that period, it is clear that, in all that relates to the efficiency, the drill, methods, aad systems of instruction, improvement in school-work has been as marked as in any other field of thought and labor. H. C. Babock.

CORRESPONDENCE, NOTES, AND QUERIES.

Arithmetical Signs, etc.

Editor Journal.—In answer to a question in the July Journal, I submit the following:

$8+6\div2=11$; because $8+\frac{6}{2}=11$.....(1)
$4+2\times3=10$; because $4+6=10$ .....(2)
$12-9\div3=9$; because $12-3=9$ ..... (3)
$(8+6)\div2=7$; because $14\div2=7$.....(4)
$(4+2)\times3=18$; because $6\times3=18$.....(5)
$(12-9)\div3=1$; because $3\div3=1$.....(6)

Pupils should be taught that the signs plus (+) and minus (—) separate terms; that the signs of multplication (×) and division (÷) do not separate terms. The *proper* use of the parenthesis and vinculum should be taught, and not the too frequent misuse. Such an example as $10\div5\times4=?$ needs a parenthesis to tell whether it is the quotient of 10 divided by 5 that is to be multiplied by 4, or whether the 10 is to be divided by the product of 5 multlplied by 4. Hence the importance of knowing when, where and how to use the signs.

$\overline{10\div5}\times4=8$; but $10\div\overline{5\times4}=\frac{1}{2}$.

Long, difficult examples should not be given to children, and the teacher who will write examples on the blackboard and require the pupils to solve them incorrectly, is wanting in experience, to say the least of it.

Some teacher who reads this article will say: "Well I'll see what Mr. Robinson says upon this subject," and after seeking in vain he will find nothing mentioned upon the subject. At last some examples may be found where the operations are expected to be performed as the numbers or signs are written or spoken; then such teacher will rest easy—that all's well, either way is good—and he will go on in his old lazy method of doing a thing that he is willing to acknowledge is wrong in fact, but best in practice. Unfortunate man, he who would do what he knows to be wrong, just because he is too lazy to do right. The example given in the July number of this Journal, is as follows:

$3+2\times4-8\div2=$? This means simply
$3+8-\frac{8}{2}=$? Answer, 7.

The authority for saying that the sign of multiplication between the 2 and 4, shows that it is the product to be added to 3, may be found in Thompson's higher arithmetic, commencing on page 17, paragraph 24, (a) and ending on page 18. It reads as follows: "When two or more numbers are to be subject to the same operation, they must be connected by a line (———) placed over them, called a *vinculum*, or by a parenthesis, ( ). Thus the expression $(12+3)\times2$, shows that the sum of 12 and 3, is to be multiplied by 2, and is equal to 30. But $12+3\times2$, signifies that the 3 only is to be multiplied by 2, and that the product is to be added to 12, which makes 18."

It is to be hoped that this matter will be entirely satisfactory. J. A. M.,
San Francisco.

Educational Intelligence
FROM
STATES AND COUNTIES.

OREGON.

Prof. L. J. Powell, the recently elected State Superintendent of Public Instruction, was inducted into that position on Sept. 1st.

Prof. Thomas H. Crawford, is City Superintendent of Portland.

Many of Oregon's best teachers were born and educated in that State. Oregon has no Normal school, but has long had an excellent University.

A new school building is in coure of erection in Portland, to cost about $24,000.

There are 1701 pupils attending the public schools of Portland, taught by thirty-four teachers.

R. K. Warren is Principal of the Portland High School.

Prof. D. G. Ingraham, formerly the very efficient principal of the Dutch Flat School in California, is now in charge of the East Portland School, No. 31. Prof. Ingraham is an acquisition to Oregon.

The recent Session of the State Association of Oregon Teachers was a decided success. Dr. L. L. Rowland, the retiring State Superintendent, and Prof. Powell, the present incumbent, took an active part. The Association elected Robert Fagan, President, and S. T. Durkee and T. C. Judkins, Secretaries.

Addresses were delivered by Profs. Powell, Condon, Bell, Neville, Bolon and Knox, and Essays read by Misses Walton, Osburn, and others.

NEVADA.

The primary schools in Gold Hill are crowded. Over one hundred pupils are cooped into one room so small as to be decidedly uncomfortable and unhealthy. Then, who can teach one hundred children in one room properly?

Mr. T. B. Janes has charge of the High School this week during the absence of Mr. Ewing, the Principal, who is to attend the Republican State Convention at Eureka. He is candidate for State Superintendent of Public Instruction.—Virginia City *Chronicle*.

Mr. J. E. Brady has resigned his position as Principal of the Central School, No. 2, at Gold Hill.

Nearly 1400 children entered school in Virginia City on their opening, Sept. 3rd.

Frank B. Mercer, of the Sutro *Independent*, has been nominated for County Supt. of Schools of Lyon Co. Who says that newspaper men are not appreciated?

CALIFORNIA.

SAN FRANCISCO COUNTY.

Mrs. DeWitt Clinton Jones, a granddaughter of DeWitt Clinton, is teaching in the Washington Grammar School of this city. Mrs. Jones is an able and rising writer. She has now in course of publication and soon to be issued, a volume of poems, entitled, "Valhalla," a collection of Norseland tales.

An attempt was made, last month, to reduce the force of supervising music teachers in the department from seven to four. We are sorry to say it failed. Supt. Mann strongly urged the reduction on the reasonable ground that as efficient work in supervision could be obtained from four teachers as from seven, and that the finances of the department did not warrant any unnecessary outlay.

The directors who made other and equally strong argument in favor of the reduction, were Messrs. Leggett, Sullivan and Dr. Fiske.

If members of the Board consider four drawing masters as ample to supervise drawing, which is certainly more important in every way than music, we fail to see on what principle, the majority insist on having seven music teachers. Still greater is our surprise, when we see that five class teachers are capable of teaching music where one can instruct in drawing.

Philip Prior, formerly principal of the Salinas High School, has been elected principal of the South End School in this city.

A. C. Bloomer, formerly of Haywards, has been elected principal substitute teacher of the department.

Among the elections in September, was that of Mr. Conrad Usinger to a position in the Bush St. School. Mr. Usinger taught formerly in Napa.

Through the illiberality of the Board of Supervisors, and the short-sighted stupidity of the Auditor, the School Fund of this city is $150,000 below the amount required and demanded by the Board of Education. The inevitable result is that, despite the strict economy already practiced by the Board, a general reduction of salaries, for this fiscal year, is necessary to keep open

the schools for the year. The Board have shown their unwillingness to take this step; and we believe we represent the sentiments of the majority of our teachers when we say that the justice and liberality of the Board are fully appreciated, and if a reduction is made they will yield to it cheerfully and with hearty approbation of what has been done to ward it off.

The pupils and teachers of the Public Schools of this city, contributed nearly $6000 for the relief of the Yellow Fever sufferers, in the South. Nobly done.

ALAMEDA COUNTY.

Prof. W. H. Chamberlain, a recent graduate of the University of California, is Principal of the San Leandro Grammar School. This is one of the largest and best schools in the state; and Prof. Chamberlain has conducted it with so much ability and zeal, that he is earning a place among the foremost educators of the state.

Miss S. A. French, formerly of Santa Cruz, is assistant in the Berkeley School.

Principal Charles H. Ham, of the Broadway Grammar School, in San Francisco, is a member of the Board of Education of Alameda City.

MARIN COUNTY.

Mr. McHugh, of Novato, has succeeded Mr. Galusha in the Ross Landing school; while the latter takes the place of principal of the San Rafael school.

Miss Wertz, a graduate of the State University, is teaching in San Antonio.

Supt. Augustine has apportioned $1,980 03, received from the State fund, to the several districts of this county. There are twenty-seven districts, and about thirty-two teachers engaged.

SISKIYOU COUNTY.

The Yreka schools opened on the 2d of September, with Mr. J. E. Putnam as principal. Mr. H. A. Morse, present County Superintendent, teacher in the Intermediate department, Miss Annie Wheaton, second primary and Miss Katie Peck, first primary. We understand that over two hundred pupils were enrolled the first day.

The Fort Jones school opened on the 9th of September, with both departments full to overflowing. Miss J. H. O'Neal is principal, and Mr. B. B. DeNure, assistant. They are going to build a $10,000 school house in Fort Jones; a bill was passed by the last Legistature, allowing them to issue bonds for that purpose. Mr. and Mrs. Scott have charge of the Etna schools.

Mr. T. H. McBride, of Colusa County, has been engaged for the Hooper District.

Miss Hattie Hagan, of Yreka, has charge of the school at Hawkinsville.

Mr. C. R. Hagan is teaching the Table Rock school.

Mr. Hollopeter, a very excellent teacher, lately from the East, is employed in the Willow Creek District.

The private school in Yreka, taught by ex-Supt. Duenkle, is well attended. With Mr. D's experience, ability, tact, disposition and love for children, his school can scarcely fail to be a grand success.

St. Joseph's Academy, conducted by the Sisters of this place, is firmly established, is an excellent institution and well deserves the large patronage it is receiving.

NEVADA COUNTY.

The Truckee school consists of three departments, under the efficient principalship of Prof. G. W. Oman, late of Siskiyou County.

Professor Oman is assisted in the Intermediate department by Mrs. Alice Oman, and in the primary, by Miss Lida Munson. There are 147 pupils enrolled, and great interest is evidently taken in the school, not only by pupils and teachers, but by parents and the community generally. So we learn from the local papers.

S. A. Bulfinch assumed the principalship of the Nevada City High School, about the middle of September. Mr. Bulfinch is an acquisition to this county. He is an excellent scholar and an able teacher. His personal demeanor and bearing are such as will gain the esteem and confidence of both pupils and parents.

Another acquisition to the Nevada corps of teachers, is the selection of Prof. N. Kennedy, as principal of the Grammar School. Mr. Kennedy is a Toronto Normal School man. That Canadian school, by the way, must be a rather remakable institution. Are all its graduates good teachers? Or does it send California only its ablest graduates and keep the poor ones at home.

Prof. Frank Power, formerly Superintendent of this county, is principal of the Grass Valley High School, and superintendent of all the schools of that city.

LAKE COUNTY.

County Superintendent J. M. Shirley, a young teacher of ability, whose official career began

full of promise, died last month of consumption. His successor has not yet been appointed.

Since writing the above item in regard to the death of Supt. Shirley, we learn that Prof. S. O. Morford has been appointed by the Board of Supervisors, to fill the vacancy.

The Lakeport school opened Monday. G. W. Wilson in charge of the Grammar department, Miss Kate Bigerstaff of the Intermediate, and Miss V. S. Ransdell of the Primary. Ninety-one pupils were in attendance.

G. B. SANFORD, late of the Bartlett Springs, has engaged a school at Williams, Colusa Co.

PERSONALS.—Prof. J. P. Royall has commenced school in the Liberty District.

Miss A. O. Parshall has closed school in Burns Valley, having accepted the position of first assistant in the Marysville Grammar School.

Prof. C. A. Cooper is again with us, and is teaching in the Ashland District.

Miss Emma Wear now has charge of the Bartlett Springs School.

SOLANO COUNTY.

The "Young Ladies' Seminary" at Benicia, which under Miss Atkins was the most popular and best conducted educational institution on the Pacific Coast, has after an interregnum of twelve years, again passed into the control of that lady, now known as Mrs. Atkins Lynch.

Hundreds of wives and mothers,—many of our ablest teachers remember "Miss Atkins' Seminary" with pleasure and gratitude.

The reopening of this school, under the same kindly but able management, will prove a great benefit to that large class who educate their girls in private schools.

Any school conducted by Mrs. Lynch will compare favorably with our best public high schools. In addition to a corps of excellent teachers, she has the valuable assistance of her husband, the Hon. John Lynch, formerly of Louisiana.

SACRAMENTO COUNTY.

In the death of Albert H. Ungar, teacher of German in the Sacramento Grammar School, that city has lost one of her ablest teachers, and the profession a noble member.

Mr. Ungar was an energetic, earnest teacher, and a sincere man. Genial in his speech and bearing, kind and courteous in his treatment of all with whom he came in contact, his loss will be regretted by children and teachers alike. We sympathize, deeply and sincerely, with his bereaved family.

SANTA CLARA COUNTY.

The San Jose Board are "reforming" the schools of that department. The High School Faculty has been reduced from four to three members. Classes have been consolidated; a good move, for the San Jose classes have always been smaller than is customary in graded schools.

The half-day system was adopted for the sixth and seventh grade classes. In this way the same teacher instructs two different classes, each three hours per day.

This system has been a failure in San Francisco.

The people of the Hester District, between San Jose and Santa Clara, voted against a tax of $7500 to build a new school-house. The *Herald*, a San Jose newspaper, which is chiefly notable for its opposition to all improvements in our method or system of public education, largely influenced this result.

It costs $82.81⅛ per year to educate a pupil in the San Jose High School, $30.17 in the lower grades.

County Superintendent Chipman reports 9506 school children in this county.

SAN LUIS OBISPO COUNTY.

Supt. F. E. Darke, edits a couple of columns, in the San Luis Obispo *Tribune*, devoted to "Our Schools." He makes his department very interesting, and we think the people of the county should consider the *Tribune* much more valuable on account of this department.

Mrs. Elvina Wickliffe has been appointed teacher of the Washington District school. There is a new school-house in this district.

Mr. J. W. Stringfield is principal of the East Santa Fe school.

Mr. Ward succeeds Mr. Morton, in the Hope District. The latter has left the profession.

Miss Lillie Evans is teacher of the Corral de Piedra school.

The San Luis Obispo school has for several years been under the principalship of D. M. Meredith. There are 266 pupils enrolled; the assistants are, Mrs. Armstrong, Misses Hazen, Holloway, Mrs. Stanton and Mrs. Williams.

PLACER COUNTY.

The school girls of Dutch Flat, in this county, gave a concert last week, for the benefit of the Yellow Fever sufferers, and realized $59 50.

LOS ANGELES COUNTY.

The Doroney School is in a flourishing condition, with 133 pupils enrolled in three departments. S. W. Burke is principal, and Misses Hettie McKim and M. Buster, assistants.

Prof. C. H. Kimball is still acting as city superintendent of Los Angeles, and principal of the High School. This is Prof. Kimball's third or fourth year, and under his able management, the Los Angeles schools have made great improvement.

There are 129 teachers in this county, and over 10,000 school children.

COUNTY INSTITUTES.

ALAMEDA COUNTY.

The Annual Institute of this county convened in Oakland, September 4th, and continued in session three days. There were nearly two hundred teachers in regular attendance.

The first day was spent by the county teachers in visiting the Oakland Schools, and observing the methods of teaching therein. The following introductory remarks were made by Supt. Gilson,

Ladies, Gentlemen, and Fellow Teachers: I welcome you to this Institute, and hope that our time will be spent so pleasantly and profitably, that when we return to our homes and accustomed duties, we shall feel to say, "it was good to be there."

It is to be hoped that the teachers will be as punctual in attendance at all exercises, as they would require their pupils to be at school.

The establishment of Institutes was designed to promote the interests of teachers as members of a profession, and thereby advance the cause of education; and it remains with us teachers to show our appreciation, or non-appreciation of the opportunities offered. A programme is presented which will offer sufficient matter for presentation and discussion, but if a deviation at any time be desirable, a change can be made.

I sincerely hope that our proceedings will be harmonious, free from personalities, dignified, and worthy of the profession which we follow.

I am happy to be able to report material progress in the schools of this county.

The teachers, during the past year, were on the average paid better wages, and the schools kept in session more months than heretofore; yet, I fear that a combination of causes will in the near future, lower the standard of our schools, and decrease the wages of teachers.

Prominent among the causes, are mischievous legislation in reference to granting certificates to teachers, the influx of Eastern teachers, the scores of pupils who are being graduated as teachers each year at the State Normal School, and the many who are being fitted at preparatory and common schools, for teachers' examinations.

These are the causes, which will inevitably lead to a reduction of wages, bring about a sharp competition, and drive from the profession some of our best teachers, unless some active measures are taken to maintain a high standard for admission to the profession. Good wages and high requirements are sure to elevate teaching as a profession, and to secure the best talent obtainable.

I believe that the general course of study pursued in our schools should be changed, since it compasses too many subjects. As the course is pursued now, pupils pass over much superficially, and understand comparatively nothing, thoroughly.

Then, again, many pupils leave school before they have passed through the grammar grades, without any knowledge of some of the things essential to success in the actual duties of life.

In my opinion, there should be devised a course of study, termed the "Practical and Essential course," in which the three R's should be the chief branches studied, and all pupils should be required to pass through this course in a most thorough manner.

This course of study should present all that is necessary to enable one to perform the business or fill the stations of ordinary life. For pupils who are able to spend a longer time in school a "post practical and essential course" should be devised. It is not enough that the pupil memorize, but his mind should be disciplined and trained, that effective study may be accomplished, and the ability to concentrate attention be gained. Since it is the place of the teacher to direct pupils as well as to explain intricacies, special pains ought to be taken to teach pupils how to stndy, how to investigate for themselves, how to find pegs on which to hang the recollection of things, how to associate facts which are similar, and those which are dissimilar.

I might go on to a great length stating views on educational matters, and the practical and non-practical which have come under my observation during my connection with the profession of teaching, yet, I should probably only say what has been said, and better said by others.

The organization was completed by the election of J. B. McChesney, and J. H. Sumner of Oakland, and Mr. Dodge of Peralta district, Vice-Presidents; Mrs. K. B. Fisher, Secretary, and Mr. Fassett Assistant Secretary.

The President announced the following committees:

Music—H. J. Tood, J. B. McChesney and Miss L. E. Bentley.

Resolutions—T. O. Crawford, C. T. Johns, Mr. Keep, of Alameda, Mrs. Johnstone, Miss Temple.

Papers were read, and addresses delivered by

the following: Prof. H. B. Norton, of the Normal School, spoke on a "Dead World," and on "Bugs," and "Geography;" John Swett, on "Country Schools;" D. L. Emerson, on "Vocal Culture;" Prof. John LeConte, on "Optics;" Prof. Hilgard, on "Botany;" Supt. F. M. Campbell, on "Spelling;" Miss Smith, of San Francisco, on "The Kindergarten." An active part in the exercises and discussions was taken by Messrs. McChesney, Crawford, Dodge and others.

A fine Poem, by Charles H. Shinn, published elsewhere in the JOURNAL, was read, and warmly applauded,

A collection of over $100 was taken up for the Yellow Fever sufferers in the South.

The JOURNAL was endorsed, and a large list of subscribers sent to the office.

The Institute then adjourned.

MARIN COUNTY.

The institute of this county closed a three days' session, on the 30th of August. All the teachers in the county were present. Supt. S. M. Augustine presided. Instruction in methods of teaching was given by Prof. Allen of the Normal School. The principal subjects discussed were: Classification, Arithmetic, History, Language and Grammar, Geography, Writing and Drawing, Calisthenics, Word Teaching, Higher Reading and Spelling, Word Analysis, School Discipline and Corporal Punishment, and Morals and Manners. The female teachers of this county took an active part in the proceedings of the institute.

A large club of subscribers sent in their names to the JOURNAL, in regard to which publication the institute likewise passed the following resolution:

Resolved, That in the opinion of this Institute the SCHOOL AND HOME JOURNAL is worthy of the support of every teacher in the State, and that we will do something to introduce it to the families of our respective districts.

This was the most successful and interesting meeting of teachers ever held in Marin, and reflects great credit on Supt. Augustine. An exceptionably good critic's report from the pen of Mr. T. P. Ashbrook enlivened the last hour of the session.

SAN DIEGO COUNTY.

The Teachers' Institute held during the first week in September, was unquestionably, the most interesting and beneficial ever held in this county. Superintendent Blackmer presided; S. L. Ward and Miss Sue Hubbard, were elected Secretaries. Mrs. Dr. Carr, was present, and frequently addressed the teachers. About one-half of each day's session was devoted to class exercises, the Institute forming the class. Addresses were delivered and instruction given by Prof. Kleeberger on "Composition," "Botany," and "The Sun;" Mr. Charles M. Drake, on "Local Geography" and "History;" Mr. J. F. Halloran on "Teaching," "Orthography," and "Primary Reading;" Mrs. Cronyn gave some excellent instruction in drawing; Mr. Dubois spoke on "Arithmetic," and "School Libraries." Messrs. Martin, Goode, Misses McFarland, Everhardt, Kane and Mrs. Bush, read instructive and interesting essays on "Methods of Teaching." The singing and literary exercises were exceptionally good. Supt. Blackmer in the course of the Institute, delivered an address of great interest and merit, on "Music." Mrs. Carr's evening lecture, on "Three Great Educators," being a graphic sketch of President Sarmiento, of the Argentine Confederation, Pestalozzi, and Froebel, will long be remembered in San Diego. Prof. Kleeberger, principal of the San Diego schools, a teacher of rare culture and ability, delivered an evening lecture on "The Sun," illustrating by means of a Magic Lantern, which held the audience of teachers and townspeople enchained for the evening. Among the resolutions passed were the following:

Resolved, That the San Diego Teachers' Institute for 1878, has been a grand success, this success being in a great measure due to the zealous effort of our worthy Supt. E. T. Blackmer.

Resolved, That every teacher should subscribe and pay for, at least one educational journal; and we would recommend THE PACIFIC SCHOOL AND HOME JOURNAL, as one worthy of our support.

The Institute adjourned.

SANTA BARBARA COUNTY.

The Institute of this county held its sessions from the 12th to the 14th, inclusive.

Superintendent Thurmond presided. Mrs. Carr was present, and assisted in instructing the teachers. Class exercises were, very wisely, a feature of this session. A lecture with blackboard exercises was given by Prof. Lipowitz on penmanship; Mr. Conrad delivered an address on reading; history was Mr. Troutt's subject; Miss Harrison and Mr. Burch spoke on arithmetic.

There were some good elocutionary exercises, and the Institute closed with a social dance.

SONOMA COUNTY.

Just 119 teachers assembled on Monday, Sept. 16th, for the Sixteenth annual session of the Teachers' Institute of this county.

Supt. E. W. Davis presided; Messrs. Dozier, Smyth and Hutton, were elected Vice-Presidents, and E. T. Crane, Secretary.

Mrs. J. E. Woodworth, of Petaluma, spoke on the subject of "Geography and Map Drawing," in an able manner; Prof. Dozier explained Miss H. E. Stone's method of interesting young children that are unoccupied during a large part of each day. The method consists in making pincushions and needle-books, baskets, and pressing leaves, and then drawing them.

Professor Wright, of Windsor, spoke on "Penmanship;" Prof. G. W. Jones, on "Written Arithmetic;" F. C. Norton, on "General Observations in Teaching;" Prof. G. P. Anderson, on "Word Analysis;" Prof. James Faulkner, on "Spelling and Spelling Reform;" Prof. Munday, on "Written Grammar;" and Prof. G. L. Ennis, on "Oral Grammar;" Prof. Smyth, on "The Moral Responsibility attaching to the Teacher's Vocation;" Prof. Hutton, on "Composition and History;" J. N. Keran, on "Grading;" "Reading," by A. G. Burnet.

Prof. Joseph LeConté and Prof. H. B. Norton, gave evening lectures. Prof. Norton likewise addressed the teachers during the day, in his usual earnest and pointed manner. These are only a portion of the lectures and addresses. The discussions were general and animated.

Supt. Davis made an excellent opening address, which was much appreciated, as the frequent and warm applause testified.

This has undoubtedly been the most beneficial, as it was the best attended Institute, ever held in Sonoma County.

Competitive Examination of Applicants for Appointment to the Military Academy at West Point, San Francisco, May, 1878.

GRAMMAR.

(10 *questions*—10 *credits each.*)

1. (*a*) Define inflection, voice, comparison, mood, tense, and illustrate the first three. (8 credits.) (*b*) Write a sentence containing the present potential of the verb *imprison*, in passive voice. (1 credit.) (*c*) How is the progressive form distinguished from the passive form? (1 cr.) 2. (*a*) Give the principal parts of ten irregular verbs, in tabular form. (5 credits.) (*b*) Name five uses of nouns in the construction of sentences. (5 credits.) 3. (*a*) Explain the difference in the use of the letter "s," as applied to the inflection of nouns and of verbs. (5 credits.) (*b*) Define *etymology* and *syntax*, and illustrate your definitions. (5 credits.) 4. (*a*) Define and give an example of—1st. A complex sentence. 2d. A compound sentence. 3d. A subject clause. 4th. An adverbial clause. 5th. An adjective clause. (5 credits.) (*b*) He *returned* a *friend*, who came a *foe*. Parse italicised words. (3 cr.) (*c*) Correct: *I expected to have found him gone.* (2 credits.) 5. Name and illustrate five ways in which the nominative case may be used. 6. Define and give an example of an idiom. 7. (*a*) What is a participle? (5 credits.) (*b*) Write a sentence containing a participle, a participial noun, and a participial adjective. (5 credits.) 8. (*a*) Write one sentence containing *but*, used as a preposition and as a conjunction. (2 credits.) (*b*) Write a sentence using the word *that* used in three different ways, and explain. (3 credits.) (*c*) Give a single direction for disposing of the italicised words in the following sentences: 1st. *Now*, look here, I will not stand that. 2d. *There* is many a slip 'twixt the cup and the lip. 3d. *Why*, how well you look! (5 credits.) 9. How is the passive voice of verbs formed? 10. Rearrange, correct and punctuate the following sentences, if incorrect, and give brief reasons: 1st. I mean to carefully look over my paper on grammar. 2d. Neither of us six were there. 3d. He likes me better than you. 4th. You may quit the field of business though not the field of danger and you may cease to be ridiculous though you cannot be safe. 5th. I don't know as I can do it like you have.

HISTORY.

(100 *credits.* 10 *questions*—10 *credits each.*)

1. For what is each of the following dates noted. 1st 1620. 2d. 1608. 3d. 1755. 4th. 1763. 5th. 1860. 2. Give the names of five explorers who made discoveries on the American Coast, and designate the locality of the explorations of each. 3. Name five Indian Chiefs noted in American History. State the section where each one lived, and tell whether he was friendly or unfriendly to the whites. 4. Give the date of: 1st. The battle of Gettysburg. 2d. The close of the Rebellion. 3d. The beginning of the Mexican War. 4th. The Convention at which

the Constitution of the United States was formed. 5th. The Missouri compromise. 5. In whose administration did each of the following events take place? (*a*) The purchase of Louisiana. (*b*) The breaking out of the Rebellion. (*c*) The admission of Texas. (*d*) The purchase of Alaska. (*e*) The war with Algiers. 6. For what was each of the following men noted? (*a*) Benjamin Franklin. (*b*) Decatur. (*c*) Perry. (*d*) General Meade. (*e*) Alexander Hamilton. 7. State the change that has taken place in the United States since the Declaration of Independence, in regard to number of States, area, and population. 8. (*a*) What was the Fifteenth Amendment to the Constitution? (4 credits.) (*b*) Name two Catholic Missionaries noted for their explorations in America, and state the general locality of the discoveries of each. (6 credits. 9. (*a*) Who were the Hessians? (*b*) Who was Count Pulaski? (*c*) Who was Paul Jones? (*d*) What did the English gain by the treaty which closed the French and Indian War? (*e*) What did the United States gain by the treaty of Guadalupe Hidalgo? (2 credits each.) 10. Mention two important battles of the Rebellion, naming the commanders on both sides, and stating the result. (6 credits.) Mention two battles won by Gen. Taylor, and two in which Gen. Scott was victorious. (4 credits.)

ARITHMETIC.

(100 *credits*.)

1. Define a prime number, a concrete number, the least common multiple, the greatest common divisor, a repetend. (10 credits.) 2. (*a*) Find the sum of 786.2941, .886021, 9348.2, 76678.201, 496.1, 1.0009, 662.897, 4.48245, and 7.2008; subtract from the sum 9894.741; multiply the remainder by 50-76, and divide the product by .04765. (5 credits.) (*b*) Why, in division, do we point off as many decimal places in the quotient as the number of decimal places in the dividend exceeds the number of those in the divisor. (2½ credits.) (*c*) Why, in division of fractions, do we invert the divisor? (2½ credits.) 3. Find the L. C. M. of 700, 98, 55, 96, 21 and 440. (4 credits.) Give, *not the rule*, but a clear explanation of the process. (6 credits.) 4. (*a*) How do you reduce a common fraction to a decimal? Give the reason for the process. (8 credits.) (*b*) Reduce to decimals: $\frac{4}{15}$, $\frac{1}{501}$. (2 credits.)

5. (*a*) Reduce $\frac{.005}{\frac{9\frac{1}{8}\times 2\frac{1}{8}\times 5}{\frac{8}{5}}}$ to a simple fraction. (4cr.)

(*b*) Reduce $\frac{289}{5100}$ to its lowest terms, and tell *why* you proceed as you do. (4 credits.) (*c*) Reduce $\frac{489\frac{2}{5}}{71}$ to a whole number or mixed number. (2 credits.) 6. A rectangular field measures $274\frac{2}{5}$ rods in length, and $89\frac{5}{6}$ rods in breadth. Find: 1st. The cost of the land at $30\frac{1}{4}$ per acre. 2d. The cost of the fence around the field at $8\frac{3}{4}$ cents per ft. (10 credits.) Add together $\frac{4}{11}$ of a mile, $\frac{4}{9}$ of a mile, $\frac{8}{11}$ of a furlong, and $\frac{7}{11}$ of a yard. Answer in miles, rods, furlongs, yards and feet. (10 crs.) 8. A fox is 96 rods before a greyhound, and while the fox is running 15 rods, the greyhound runs 21 rods; how far must the dog run before he can catch the fox? Solve by proportion and by analysis. (10 credits.) 9. If a regiment of soldiers, consisting of 939 men, can eat 351 bushels of wheat in three weeks, how many soldiers will it require to eat 1404 bushels in two weeks? Solve by compound proportion and by analysis. (10 credits.) 10. Add $\frac{7}{18}$, $\frac{2}{3}$, $\frac{8}{11}$, $\frac{5}{6}$, $\frac{21}{22}$, $1\frac{9}{27}$, and $\frac{1}{4}$, subtract $2\frac{13}{54}$, from the sum; multiply the remainder by $4\frac{8}{11}$, and divide the product by $11\frac{1}{8}$. (10 credits.)

BOOK NOTICES.

LATIN COMPOSITION. An Elementary Guide to Writing in Latin. Part I.—Constructions. Part II.—Exercises in Translation. By J. H. Allen and J. B. Greenough. Boston: Ginn & Heath. 1877.

In this work the authors have taken a new departure. The old method was to take short sentences—translations from Latin—and turn them back into the original, showing by them all the peculiar constructions of the language.—These authors think they see "a better way." They adopt the principle that to learn well the usage of the language we should "put real English into real Latin." Their point is not how closely can a Latin phrase be imitated, but how can an English thought be best represented in Latin form. They are not satisfied to dwell on constructions but aim to get at the genius and spirit of the two languages. Therefore they early drop the short sentence and take up the paragraph, and even narrative, and aim at leading pupils to *think* in Latin. Thirty years ago our teacher used to talk about our *thinking in Latin*, but most of us we are quite sure did what little thinking we were ever guilty of in the plainest Saxon.

Part I. of this work is limited to constructions in syntax and intended for pupils in their last academic year.

Part II. is intended for college classes, and is quite difficult enough for any college classes that we have any knowledge of. We never saw any classes that could put Shakespeare into classic Latin. Possibly De Quincy and some other English students could do it, but the average American pupil will not do much such work in our opinion.

We do not quite see, why, if good English is to be put into good Latin, Webster or Burke is not taken, instead of Latin and Greek authors, which have been translated first into English.

Again, we do not think this book suitable for boys in their first year in Latin; it is too difficult; but it is used in our High School. For well-trained, advanced classes, it is certainly a good work if boys are expected to think in Latin and write it.

WORCESTER'S POCKET DICTIONARY.—We have just received from the publishers, J. B. Lippincott & Co., Philadelphia, a copy of this really valuable little volume. Worcester's Quarto Dictionary is an authority of many scholars of America and England, and from it the abridgment now before us has been most carefully compiled. It contains besides a profusely illustrated vocabulary of over eighteen thousand words, lists of foreign words and phrases, abbreviations, rules for spelling, numerical tables, etc. We consider it a very useful and valuable little book. It will be mailed to any address on receipt of the price, 63 cents.

QUESTIONS AND PROBLEMS IN ELEMENTARY PHYSICS. Containing numerous practical examples and exercises for the use of pupils in High Schools and Academies. By C. L. Hotze, author of "First Lessons in Physics," "First Lessons in Physiology." St. Louis: Central Publishing Company.

This is undoubtedly the best and most complete collection of questions in physics, we have ever seen. The great merit of the work is that the examples all illustrate the principles of physics; that is, there are no arithmetical puzzles. If the principle in physics be thoroughly understood, the examples work themselves. As a hand-book for the teacher in the grammar or district school, the work is simply invaluable.

THE RHINE. By Victor Hugo. San Francisco: Payot Upham Co.

This enterprising home firm have been wise in giving us this excellent translation of one of Victor Hugo's most charming books. Everything that the bright genius of this gifted Frenchman touches, sparkles and grows iridescent, under the spell of his glowing fancy. Every step of this journey along the Rhine, sometimes on horseback, often in a carriage, but most commonly on foot, brings up some vivid recollection of the past in the writer's mind—a past, which under his pencil becomes as real as a painting glowing with rich colors fresh from the hands of a master. But to be appreciated, the book must be read.

WOODLAND ECHOES. A new day-school singing book. Chicago: Jansen, McClury & Co.

We were not much impressed with this book, though we confess to a rather cursory examination. It appears to have no features distinctively new; there is no great variety in the music, and in short, it appears to resemb e rather closely the hundred and one music books we commonly see.

Books Received.

The following new books have been received. Reviews will appear in the November JOURNAL.

FROM A. L. BANCROFT & CO.

DRIFT FROM TWO SHORES. By Frank Bret Harte. Boston: Houghton, Osgood & Co.

BEAUTIFUL HOMES. By Henry F. Williams. New York.

FROM THOMAS H. BICKNELL, BOSTON.

OUTLINE STUDIES IN ENGLISH CLASSICS. By Alfred F. Blaisdell. Boston: New England Publishing Company.

FROM PAYOT, UPHAM & CO.

HANDBOOK OF NATURAL PHILOSOPHY. By W. J. Rolfe and J. A. Gillet. New York: Potter, Ainsworth & Co.

THE OCTOBER MONTHLIES.

The Popular Science Monthly for October will be issued about September 20th. This number will open with an illustrated popular article by Prof. J. M. Newberry, of Columbia College, on "The Geological History of New York Island and Harbor," and will also contain articles by Bain, Huxley, Spencer, Kirkwood, Brooks, and other eminent home and foreign writers.

Appleton's Journal for October is an excellent number. In fact the *Journal* is maintaining a high rank in American magazine literature. The principal articles are: "The Multitudinous Seas," by S. G. W. Benjamin; a novelette, "A Hidden Treasure," by Christian Reid; "A Motley University;" and "Consolation for the Nervous," by Dr. George M. Beard.

Harper's for October is a splendid number. John Russell Young's thrilling story of Stanley's journey through "The Dark Continent" is worth the price of an entire number. It is utterly impossible for us to do justice to this very strong number by enumerating one-half the first-class articles. Our advice to all is to get a copy and read it.

The October *Scribner* closes the present volume, and as if perfection in magazine making were not yet attained, fresh attractions are promised for the ensuing volume. Our own John Muir, too, will have a series of Articles on the "Sierras."

St. Nicholas is emphatically the best magazine for young people and for some not "ower young," that is now or ever has been published. The October number is fully up to the standard. We have always thought *St. Nicholas* perfection, but the publishers, it appears, contemplate making an enlargement and other improvements. We earnestly hope their endeavors to improve the public taste, will meet with the full meed of success, which they so richly deserve.

PRACTICAL DEPARTMENT.

SUGGESTIONS FOR HIGH SCHOOL WORK. Edited by J. B. McCHESNEY. [Principal Oakland High School.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK. Edited by JOHN A. MOORE. [Principal of Eighth St. Grammar School, S. F.]

SUGGESTIONS FOR PRIMARY SCHOOL WORK. Edited by Mrs. H. M. SOLOMONS. [Bush St. Primary School, S. F.]

SUGGESTIONS FOR GRAMMAR SCHOOL WORK.

My Observations in a Fourth Grade.

The teacher was a WOMAN who had experience, and understood teaching. She was commencing her new year's work in arithmetic. Each child had its book open lying on its desk. She had been saying something about the beautiful *cut* at the top of the page, and all eyes were searching for the beauties. I saw that interest was elicited, and that the class was in good condition. She read aloud, but in a sweet mellow tone—enough to win the affection of any child. "Arithmetic is the science of numbers, and the art of computation." I intuitively looked at the teacher as her face glowed with love and gratification. She seemed happy, and I said to myself, "How I should *love* to have you in my school." Her whole class seemed gratified, and in less than half a minute several hands were raised gracefully and modestly, when she asked a bright little boy what he was thinking of. He replied that he knew there must be a difference between the *science* and the *art* from the manner in which she had read the article, but that he could not distinguish the one from the other. She explained briefly and quite satisfactorily what each meant, and then she proceeded to read the second definition, having the pupils give many examples. Each definition was disposed of readily until the eleventh was read, when she stopped and wrote several short tables, illustrating fully what was meant. I thought, happy was the child that fell to her charge.

The lesson lasted just 57 minutes, closing with the eighth example, Art. 57, page 12. Art. 58 was assigned for the next day.

I am frank to say that there was something about the whole proceeding that I had never seen before. I had never seen a class held 57 minutes at one time without some loss of time, or without some one's getting impatient or out of order.

SILENT LECTURES.

In my every day work in the class-room, I am constantly reminded of the fact that my pupils cannot see. They usually have a fair idea of the anatomy of the eye, and can talk about its coats and humors quite understandingly; that furthermore, they will tell you how important a member it is, and that the greatest care should be observed in its use so that no harm may come to it in fact, they know all about it, but are unable to use it. Ask one of them to see something for you, and you become pain-

fully aware of the fact that they might as well be without eyes as to possess such uneducated ones. They can gaze and stare, but the gift of seeing is denied them. Denied them do I say? no; it is the talent that has been laid away in a napkin; it has been a dormant faculty, because no one has taken pains to develop it. In my work as a teacher I find myself constantly hindered, because my pupils are so lacking in perception. It occurs to me that although so much has been said about the importance of training the perceptive faculties, very little care is taken actually to do it. On the whole, I think it is less troublesome to the average teacher to secure those mental operations, in which thought generates thought, than it is those in which sight generates thought. Perhaps, this arises to a considerable extent from the fact that most of our schools are poorly provided with material by the use of which the seeing faculty is developed.

In these days in which the natural sciences are so influential in forming public opinion, even to modifying our theology, it is of the utmost importance that the coming generations should be better prepared to observe and experiment than we are. The age is a materialistic one, and if we are to draw our lessons of life from the objective world around us, it behooves us to have our tools in the most perfect order. Glib tongues are common enough, and there is no dearth of those who can draw conclusions from premises with accuracy, but the unerring seers are exceedingly scarce. Ruskin says, "Hundreds of people can talk for one who can think, but thousands can think for one who can see. To see clearly, is poetry, prophecy, religion,—all in one."

The educational world needs just now, above all things, an apostle who will go about and impart methods for teaching more thoroughly how to develop the perceptive faculties. Let there be less talk about it and more doing it. Although I do not think I have a call or a gift for mission work, still I will briefly describe an exercise which tends in the right direction. We will call it a silent lecture, since hardly a word need be used.

For the purpose of illustration, we will suppose the subject to be carbonic acid gas. Having previously prepared some marble, you may simply state that this is broken marble, and this acid in the bottle is called hydrochloric acid, now ask your pupils to observe carefully what takes place. You then pour the acid on the marble and direct the gas by means of a rubber tube into some appropriate vessel as a large beaker glass. Then plunge a lighted candle into the glass; at first it will continue to burn until it reaches the bottom, but after a few minutes it will be extinguished when near the top. Plunge a small beaker into the large one, lift it out carefully and invert it over a candle and the flame is extinguished. Direct the gas through some lime water; do the same with air from your lungs; inhale the air from some suitable vessel as a lamp chimney, with the lower end placed beneath the surface of some water, then fill it with the air from your lungs and plunge a lighted candle into it. Continue in this way, performing all the experiments your time, apparatus or ingenuity will allow, without a word of explanation, only requiring your class to observe and note on paper what they see. The next day you can spend an exceedingly interesting hour in asking questions on your experiments, being careful that a distinction be made between the answers given, as some will be the result of their observation, and others will be those obtained from a process of reasoning.

The teacher of any of the natural sciences will perceive at once that a vast field is open to him for exercises of a similar character, all of which will be exceedingly valuable in developing the seeing faculty.

J. B. McC.

THE PACIFIC

SCHOOL AND HOME

JOURNAL.

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THE NEW TURKEY.

BY GEORGE M. TOWLE.

By the Treaty of Berlin, the result of the Congress which sat so long in the German capital, the European powers have made peaee, and have, for a while, at least, settled the long-perplexing Eastern Question. It will be interesting and instructive to glance over the field, and see what changes the Treaty of Berlin has made in the map of the Ottoman Empire; how it has affected the various races, and what influence it has had, and is likely to have, on the destinies of nations.

Instead of a large, virtually independent State, including Bulgaria and Roumelia, north and south of the Balkans, it was agreed that only Bulgaria, between the Danube and the Balkans, should become independent, with a prince of its own choosing, and the full right of self-government. At the same time the new State was obliged to assume its proportionate share of the Turkish debt. Roumelia, between the Balkans and the Ægean Sea, was thus saved to the dominions of the Sultan, and the Balkans was made his northern frontier. But the powers further stipulated that the Sultan should appoint a Christian governor to administer Roumelia, and that he should also introduce reforms which would make the Christians in that province in every respect the civil and political equals of the Mohammedans.

A glance at the map will show how large a territory is thus retained by the Sultan, which Russia desired to take away

from him ; this territory being indicated by the shaded lines.

Russia succeeded in persuading the Congress to allow her to re-annex Bessarabia, at the Danube mouths. This province belonged, however, to Roumania, which, though nominally Turkish, has long been, in reality, independent. Moreover, the Roumanians fought gallantly with the Russians in the late war, and materially aided them

agreement of the powers that Austria should "occupy" her two extreme northwestern provinces, Bosnia and the Herzegovina, which, as will be seen by the map, are contiguous to the Austrian frontier. It was here that the insurrection broke out that brought about all the later troubles. The Austrian "occupation" is alleged to be only temporary, until the provinces can be restored to order, and insure good govern-



in the capture of Plevna ; and the taking from them of Bessarabia seems an act of harsh ingratitude. In exchange the province of Dobrudscha, just south of the Danube, was detached from the new principality of Bulgaria and given to the Roumanians.

Turkey was further diminished by the

ment; but it seems in the highest degree probable that Austria intends, sooner or later, to incorporate Bosnia and the Herzegovina in her own empire, and to ex-

*The above article was in type before the receipt of the map, which we find extremely inaccurate. Dalmatia, on the Adriatic, nearly to Montenegro, is entirely omitted, as are Illyria and Croatia. However, as Bosnia and Montenegro are now really part of Austro-Hungary, this inaccuracy is not not so apt to mislead as would at first appear.

change their military occupation for permanent annexation at a favorable opportunity. Both Servia and Montenegro received some small portions of territory, and were declared to be henceforth absolutely, as they have long been virtually, independent of the Sultan's rule.

It will appear, by looking at the map, that the Sultan's dominions in Europe have thus been reduced to the provinces of Roumelia, Macedonia, Albania, Epirus, and Thessaly. He has been deprived of about one-third of the territory which he governed a year ago. His northern frontier is now the Balkan range, and west of that, on a line running almost due westward to the Adriatic Sea. The powers agree that the Sultan shall be compelled to make such reforms in all the provinces which remain in his possession, as will give the Christians every right that the Mohammedans already enjoy.

The changes, resulting from the treaty, in Turkey in Asia, are far less in extent and importance. It is true, that Russia has obtained the port of Batoum, and the fortresses of Kars and Ardahan; but she is compelled to raze the fortifications of Batoum, and make it a free port; and she has been obliged to surrender all the territory she claimed beyond Kars.

Meanwhile, England, whose chief interest in the Eastern Question is to guard her empire in India, has made a separate treaty with the Sultan, by which she agrees to resist any further attack by Russia on his Asiatic dominions by force of arms; and, in order to have a convenient military standpoint for undertaking such a defense, should it become necessary, England has taken possession of the Turkish island of Cyprus, just off the coast of Asia Minor, which commands the Euphrates valley, and which she will govern and garrison. England agrees to pay the Sultan the excess of the revenue of Cyprus over the expenditure. Russia was forbidden by the Treaty of Berlin either to seize any further territory of the Sultan, or to imperil the interests of the present creditors of Turkey in seeking the payment of the indemnity she claims, the effect of which will probably be that she will not get any indemnity at all.

The general result of the treaty may be stated as follows: While Turkey in Europe is considerably reduced in size, it still continues to be a European power, protected in its existence by nations whose interest it is that there should be a barrier between Russia and the Mediterranean; the Turkish Christians will receive a larger share of liberty and European protection; the Austrian empire will, sooner, or later be increased by the absorption of Bosnia and the Herzegovina; England has acquired the responsibilty of defending the Asiatic dominions of the Sultan; while Rassia, though she has obtained Bessarabia, Batoum, and Kars, and has been able to create in the new Bulgaria a State which will be virtually under the influence of the Czar, is apparently as far off from the realization of her cherished dream to be the mistress of Constantinople, and to control the Bosphorus and the Dardenelles, as she was before she crossed the Pruth.—*Congregationalist.*

A LEARNED WOMAN.

BY PROF. GEORGE W. MINNS.

[Concord, Mass.]

No. II.

In 1818, Miss Bradford was married to the Rev. Samuel Ripley, and for the next twenty-eight years her home was in the parsonage at Waltham. In coming there, she entered at once into the labors of a house where fourteen boys were kept at a boarding-school, and these labors continued during all her life there—she was the sole matron of the establishment. Here

eight children were born, and all but the three youngest grew up. She made all her children's clothes, and did all the mending of the family, including that of the hired man. With a large family and scholars at board, with pupils whom she fitted for college, or instructed as "suspended" students in their college studies, with impaired health, often suffering from severe headaches, sometimes from hemorrhage, she performed an amount of work which might have taxed the combined strength of a professional school-teacher and two ordinary women—and yet had always time to spare for her guests, and never, unless prevented by sickness, refused to see her numerous visitors. During all these years, almost the only time she had for pursuing the studies in which she was herself interested was at night, after the boys had gone to bed. I have seen her then, after the family sewing had been finished, sitting in the parlor, absorbed in the perusal of some favorite author. Her knowledge increased day by day, because her mind was wonderfully quick and retentive, and her attention was firmly fastened on whatever was the subject of her thoughts, so that she would do more in an hour than others in weeks.

What her husband thought of her may be known from this extract from one of his letters: "I have many in whom to rejoice, and one, the richest and choicest blessing that God ever gave to man, to aid, and bless, and sustain me—a pure, noble, exalted being, whose light gladdens and cheers and at the same time guides all about her."

For nearly two years I was a member of Mrs. Ripley's family, when she was about forty years old. I was placed under her care by my father, to whom the school had been highly recommended. I had no little curiosity to see a woman of whose uncommon learning I had heard. She came into my room, said "this is the new scholar," and shaking hands with me, welcomed me to Waltham. She then sat down, and with a remarkably pleasant voice, questioned me about my studies, how far I had read certain authors, and arranged the course of study I should pursue with her, and the hours for recitation. Her dress was as simple as possible; indeed she was absolutely without appetite for luxury, or ornament, or display. She was spare of figure and rather tall. Her head was of a beautiful shape, and comely silver hair was partially covered with a cap. She never wore false hair. Her complexion was fair, and her face full of healthy color; her eyes were clear blue, and of a wonderful quickness of movement; her nose was regular in shape and prominent; her mouth large, but full of sensibility. The total expression of the face was most attractive, brimful of sense, character, and swift intelligence; but perhaps the chief charm of it, like that of her sweet voice, was a certain delightful kindness. Boys never forgot what they owed to her; and when she found them in danger of incurring censure, a loving word or caution would be spoken, or perhaps quietly conveyed in a mended pocket.

All who have been under her care must remember with delight the recitations in summer time under the shade of trees near the bank. There she sat, her hands busy on some household task that left the eyes free, herself a part of the beautiful landscape, and heard the lessons. "She did not," says one of her scholars, "keep her eyes on the book; she seemed to know it by heart, and always set us right, or asked us questions, or pointed out her favorite passages with enthusiasm, without interrupting the sewing, or the shelling of peas." If the young men shared her delight in the book, how her eye lighted up and her face glowed! And then, as if all she needed was a little sympathy to call forth all her powers, what a wealth of learning

and thought and feeling she poured out in a rich and exquisite voice, sweeter than the songs of birds warbling close by, as if in emulation. When I think of that time of serene enjoyment I sigh. Ah, happy days! alas, too soon gone forever! Indeed, whenever she was excited by genial conversation, she reminded me of a bird inspired and transported by its own song. Then how enthusiastically and how fast she talked! how responsive she was to everything gay and animated! and her eyes beaming with intellect, glanced quickly from speaker to speaker, as the cup of social converse went round.

And so days passed of perfect happiness under the influence of this wise, gentle, inspiring woman. In the four different languages in which I recited to her I never knew her to hesitate once in translating; she seemed to be thoroughly acquainted with the authors. She knew the irregular verbs and the difficult constructions as well as any professor. And she was superior to many professors in this, that she had appreciation of and a real enthusiasm for any great author. She did not read the authors to learn the language, but she read the language to learn the great thoughts of its great writers. No matter how much fatigued she was, a remark upon a favorite passage instantly animated her, and then how delightfully she talked. And this excitement she sometimes indulged in at risk of injury to her health. One evening, after her return from Boston, she heard me recite, and then for two hours she discoursed upon the authors we had been reading, and the characteristics of their genius, quoting passages from them, comparing the style of ancient and modern writers, and all this with an ease and fluency that astonished while it delighted. It was as if she rejoiced at the opportunity to utter freely all her thoughts and feelings. I sat still and listened; that was enough happiness for me, though, perhaps, I may have put a question now and then. The next day her husband told me that I must not let his wife talk so much in my room; that when she began she never knew when to stop; and that after leaving my room the night before, she had had a violent hemorrhage. I expressed my great regret for this result, but did not consider myself in any way the cause, since I could no more have stopped Mrs. Ripley from talking than I could the wind from wandering according "to its own sweet will."

There was not a sign of the "blue stocking" about her. I had feared to find her formal, precise, pedantic, conscious of her attainments, and perhaps seeking opportunities to display her acquisitions. She was entirely the reverse. The charm of her society was her perfect naturalness, the utter unconsciousness of any special claim to attention based on her superior learning, which was never obtruded and only came to light when some student or savant wished to compare notes with her, or she with him. Otherwise the woman entirely absorbed and concealed the scholar. A lady writes of Mrs. Ripley's saying to her (she always thought to comfort her), "One ounce of good feeling is worth all the learning in the world."

I have heard that her father once told her that she was so devoted to books he feared she would not make a good housekeeper. As if to prove his mistake, she became a model housewife, while still keeping up her love of literature. Under her control all the complicated affairs of a numerous household moved smoothly and perfectly. In all the annoyances of an overtaxed life her temper was never touched. She was the very soul of patience and quiet perseverance.

She had no ambition for notoriety or to appear in print. I never heard her complain of man's inhumanity to woman, or declaim in favor of woman's rights.

Nothing could have induced her to speak on a public platform. At the request of her husband she once addressed the children in his Sunday-school. After the dismissal of the school, and when the children had hardly left the building, one-half the ceiling fell. Upon her return home I heard her say that no one could imagine her fright and distress as she stood in front of the scholars and heard her voice, the only sound in the big barn of a meeting-house. She added, "I will never do it again." "I shall excuse you," sportively replied her husband, "your eloquence is too moving for our old meeting-house; we shall have a pretty heavy bill for repairs."

The following anecdote related by Mr. Emerson well illustrates her total unconsciousness of appearances when she was interested in the topic of conversation: "Not long before her marriage, one of her intimate friends in Boston, whose family were removing, proposed to her to go with her to the new house, and, taking some articles in her own hand, by way of trial artfully put into her hand a broom, whilst she kept her in free conversation on some speculative points, and this she faithfully carried across Boston Common without hesitation or remark."

I have spoken of her entire indifference to dress. Her son-in-law says "it was a fine sight to witness the last preparations for her going out upon a call, or her Sunday evening walk to Mr. Emerson's, when her children took her in hand, swiftly rejecting much that she had done, shaking her up and setting her to rights, while, with laughing remonstrances, she yielded to the cheerful breeze."

A Concord lady, who went with Mrs. Ripley and Mr. and Mrs. Emerson from Concord to Cambridge, to meet some distinguished foreigners at a party where many eminent persons were present, writes that she was struck by the marked and joyful attention shown Mrs. Ripley as one person after another eagerly recognized her presence, and also with her own animated and responsive enjoyment. It seemed that to old and young the meeting with Mrs. Ripley was the crown of the occasion. No one was so lovely, or with whatever aid of wealth or fashion, so becomingly dressed as she, in her plain black robe, and the simple lace cap which marked in delicate outline her beautiful silver hair and noble face.

LESSONS IN BOTANY.

Lesson II.

BY C. B. BRADLEY.

[Professor of Natural Sciences in Oakland High School.]

THE SEED.

Having provided himself with various seeds and sprouted plants, as suggested in our last, the teacher should call attention first to the coverings of the seeds. In some they are as firm and hard as bone; in some they are woolly; and in others thinner and lathery. But in each case the coverings will be found firm enough to furnish all the protection which the seed will ordinarily need, both from weather and from rough handling. Illustrate this point further by showing how these seed-coverings may be all removed without injuring the real seed within. Carefully crack a peach-stone before the class, and strip off the brown inner wrapper of the kernel with your knife. Remove in like manner the coverings from a softened bean, pea, or squash-seed, and be sure to have each one do the same thing for himself after you.

Notice next the structure of the kernel within. In all these seeds it splits easily into two halves just alike, and these seem fastened together at one point by a sort of hinge. Looking closely at this part there can easily be made out a stumpy little

projection reaching below the outside of the halves, and a tiny little bud inside, pressed close between their faces, and nothing more. To find out exactly what all these things are, let us ask Nature herself. In the trays of young plants we shall find her answer. The two oval green leaves of the young squash or pumpkin plants are manifestly the two fleshy white plates that filled the seed-covers. The little stumpy appendage has grown to be a stout stalk with roots striking out in all directions from its base. The little bud pressed tightly between the two plates has lengthened out into a joint of stem and shows plainly the young leaves at its tip. The empty shell split open and shriveled can generally be found on the ground hard by. Every part has been accounted for. *The identical plant was in the seed.* The bean-plant shows a like development of the corresponding parts, save that the two plates are not so broad and leaflike as in the squash-plant. In the pea they never get above the ground at all (unless by accident), and the growth of the little bud between them is the first thing we see. A little previous practice will enable the teacher to show, under his glass, these same parts in the smaller seeds, which he can then compare with the sprouted specimens.

The teacher should end the lesson by eliciting from the pupils a statement of the various facts about seeds which have been brought out, and by grouping the items in good workmanlike manner, so as to have them remembered for future use. Reversing, for instance, in this lesson, the order of presentation, the children will have learned that the seed is (1.) a tiny plant; that it has (2.) stem, (3.) leaves, and (4.) a bud for future growth, and (5.) is securely packed for transportation. The whole matter may be very strikingly illustrated by the analogy of the rose-plants now so frequently packed in little boxes and sent by the mails, and all ready to grow as soon as planted in the ground.

It will be seen that the pupils have probably beeu taking not merely their first lesson in science, but their first also in the art of *dissection*, by the aid of which so many of the facts of all physiological science has been discovered. The teacher will do well not merely to see that the simple dissections suggested above are done by each in the class, but to encourage each one to bring in, at the time of the next lesson, a seed of some other sort nicely dissected by himself and neatly laid out on a card in such a way as to show all the parts described above. A word of praise for the neatest work, and a look or two at the condition of the knife-blades, and a little suggestion, by example, of *how to do it*, to the boy whose "fingers are all thumbs," will work wonders in their subsequent efforts. It is needless, I hope, to say that what is here begun should never for a day be dropped. It should be not only the accompaniment of but the means by which they acquire a large portion of their botanical knowledge.

Lesson III.

How the young plant gets its start in life.

Call attention to the wonderful amount of growth which has been accomplished by the young squash or bean-plants. The stem has grown to be ten to twenty times as long as it was in the seed, and proportionately thicker. The tiny bud above, which, in the seed, could scarcely be distinguished, is opening out into a tuft of shapely leaves. But plants cannot grow without food any more than boys can. Whence has come the food for all this growth, the material which has been built up into stem and leaves? Some one will of course think of the roots. But then the roots themselves must first be made

out of *something* before they can reach out and collect food from the soil to feed the plant. Pull up one of the youngest plants carefully from the earth, and its roots will be seen to be quite too scanty and feeble to have done any such rapid and efficient work. So far the roots have not "paid their way" at all. Instead of that, the young plant has actually been at expense to keep *them* growing. Stem, leaves, and roots are all evidently growing at the expense of *some* store of provision, and that store is not *outside* of the plant either. Let us see if we can find it. If tbe store be in some part of the plant itself, then that part will *not* be growing, as the other parts are, but rather diminishing. Some one presently will notice that the two seed-leaves of the bean-plants do not grow more plump, but thinner and more hollow as the plants grow older. If they are cut open they will be found to be not nearly so dense and hard as they were at first. They may be a little broader, perhaps, but there is evidently not nearly so much substance in them. Pull up one of the well-started pea-plants and look for the thick, fat hemispheres that filled the shell, and they will be found wasted and shriveled. The young squashes, too, have got rid of so much of the material in their seed-leaves that they are now quite thin and limber like other leaves. We have at last discovered the store of food from which the plant draws till it can feed itself. It came from the parent plant, and was packed away securely in the seed-leaves of the plant that was to be, and all this while the seed was still growing on its parent stem. Besides this it only needed the water, which it absorbed from the soil to moisten the dry, hard food, and put in shape to be used in the other parts of the plant. As soon as this food is exhausted the seed-leaves are generally of no more use, and then they drop off, as may be seen in the older bean-plants.

But all seeds do not carry their store of nourishment in the seed-leaves. Carefully cut open a four-o'clock seed and you will find the young plant with *thin* leaves, curled over a white, floury mass, which nearly fills the seed. In a castor-oil bean the plant will be found straight, and in the very center of a rich, oily food. In the morning-glory, the young plant is all curled and clumped up in a similar mass of nourishment. So likewise is it with the tomato and many others that can be shown under the glass.*

A very conclusive experiment may be tried on the plants which have thick seed-leaves, by clipping these last with sharp scissors just as soon as they appear above ground—wholly in some cases, and partly in others. The young plants are thus more or less completely deprived of their store of prepared food, but none of the other parts have been injured in the operation. The results will speak for themselves. It will interest the pupils to notice that this food intended for the young plant is what we appropriate to our own use when we eat peas, corn, buckwheat, and so forth.

To the points already learned about seeds we can now add this, that they contain a store of provision, packed either with the young plant or in its seed-leaves, and sufficient to give it a start in life.

Between this lesson and the next, the pupils should be set to scouring the fields and gardens of the neighborhood, both for seeds and the fleshy germinating plants that grow from them, and they should compare the two, so that the one shall help to explain the other. Weeds are unfailing friends here if nowhere else, because of their numbers and vigorous growth. Let each one make a little state-

*The common potato affords a fine parallel case, in which each of the "eyes" is a bud for the future growth, while the whole mass of the potato is prepared food to start these into vigorous growth.

ment or report on the plant and seed he has studied; telling the common name, if he can learn it; the character and location of its food; whether any animal eats the seed for food; shape and condition of seed-leaves before and after germination, and so on.

THE YOUNG TEACHER.

BY CHARLES M. DRAKE.

[National City, San Diego County.]

CHAPTER III.

IN WHICH FRANK FINDS A FRIEND AND A ROLL OF PAPERS.

"I am so glad you have come, Frank," said his young friend Jo Porter, as they left the supper-table and went out into the street; "I am going to keep you here a long while, and we will have a jolly good time."

"You can keep me for four days, if you will," said Frank, smiling; "but we will have to defer the jolly good time, as I am going to attend the examination, and must work hard so that I shall not fail."

"Is that so? I wish you much joy of it, Mr. Prof. Frank Dare, Esquire."

"That will do, Jo. Perhaps I shall fail, and then all those fine titles will go to waste."

"Oh! you will succeed. Here comes my teacher, Prof. Root. He is one of the examining board. I will introduce you. Good morning, Professor. Are you studying the beauties of San Diego climate, this evening?"

"Nay, Master Porter, I am studying the beauties of San Diego nomenclature. You see, the State Board of Education directs us to give instruction in local georaphy. So I have made a list of the ranches, districts, rivers, valleys, and mountains of this county; and, though I have succeeded in locating them properly, their pronunciation bothers my Eastern tongue, while of their meanings I know almost nothing."

"Let me introduce my friend, Frank Dare, Prof. Root. He has all these local names at tongue's end, and can jabber Spanish and Indian at a furious rate. He has come to be ground through the examination-mill; and, of course, is chock-full of all sorts of knowledge, useful and otherwise."

"Ah!" said the Professor, giving Frank his hand; "have you made a study of these county names, Mr. Dare! I went to my Spanish dictionary, but could find very few of them."

"I know the meaning of a few of them," said Frank, modestly. "Mr. Osgood, my teacher, had me collect as many as I could; but I do not know all of them."

"I found a few, very few myself," said Prof. Root. "Let us sit down upon this lumber-pile and I will consult my notebook. Ah! yes. I learned that San Diego was St. James, but San Dieguito—"

"Is St. James the less, I believe," said Frank.

"Pray how many saints have you in this county, Mr. Dare?"

"Over twenty," said Frank, laughing; "there is San Jose (St. Joseph), San Luis Rey (St. Louis, the King), San Marcos (St. Mark), Potrero de San Juan Capistrano (the field of St. John, beheaded), San Felipe (St. Philip), San Elejo, or Ilejo (St. Elias), Santa Maria (Holy Mary), and a number of lesser Saints and Saintesses."

"You have several names beginning with 'Ja,' which is pronounced 'ha,' I believe."

"Yes, sir; they are Indian, and have a reference to water. Jamul means slimy water; Jamacha, mock-orange—the gourds of which are used to dip water with; Jacumba is a hut by the water; Japatul, the baskets they make of water-grasses; Jemet means acorn-valley."

"The first settlers were very literal in

their naming, it seems to me," said the Professor, "and water seems to come forward with a great deal of prominence."

"Yes, sir; on account of its scarcity, I suppose. Aguango means pond-valley; La cienega is the swamp; Guajome, frog-pond; Agua caliente, hot-water; Palpiso and Augua Hedionda, both mean stinking water; Agua cayendo, falling warer; and Pala means water. We have a Colorado (or Red river, and a chocolate arroyo, or Brown creek. Then different parts of the same stream have different names. The San Dieguito, as you go towards its source, becomes the San Bernardo (St. Bernard), the San Pasqual (holy passover), the Panio, the Santa Ysabel and the Volcan(o)."

"What about the mountains of San Diego County? How did they get those curious names?" inquired Jo, who had been listening with much attention.

"The mountains you see farthest south, in this county, is the Jamul, or Otay (valley). Next comes the San Miguel (St. Michael), then Lyons Mountain, named after Gen. Lyons. Farther back are the Cuyamacas, which means 'above the sea,' or 'it rains behind.' South of these is the Tecate (wild-cat), and far to the north are the Ilpa (mesquit), the Teaca (black), the Ballena (whale, from the shape of the mountain), the Cajon (box), Picacho (the peak), and the Morro, which they say means 'one huge rock.' You cannot see Mataguaquat (red hill), or the Milquatay (great valley, or grass valley), and beyond those are a dozen others, with, for the most English names, like the Smith Mountains and Purple Hills."

"What about the valleys?" inquired Prof. Root. "I suppose they are named after the rivers that run through them, for the most part."

"Oh! no," said Frank; "not near all of them. True, there are the Tia Juana (aunt Jane, formerly Tiagua, or near the sea), and several others; but we also have the Valle de las Viejas (valley of old women), the Valle de las Pulgas (fleas), the Valle Bautista (baptist), the Cañada de las coches (pigs), Tecolote (little owl), the Escondido (hidden), or Rincon del Diablo (ring of the Devil), Coahuilla Valle (seceders), Las Penasquitas (little stones), Paguay (meeting of the valleys), and many Vallecitos (little valleys), too numerous to mention."

"I have here several ranches that you have not mentioned," said the Professor, handing a paper to Frank.

Frank took the paper and looked at the names. "El Cariso," said he, "is the reed the Indians use for a pipe-stem. Encinitos is the scrub-oak, or little oak. Buena Vista is good view; Las Flores, the flowers; and Laguna, the lake. La Playa is the beach, and La Punta means the point. Pauma and Pamosa are kinds of stones. Puebla is village, while Potrero is field."

"And the Mesa Grande and Mesa Chiquita?"

"Simply the great and little tablelands," replied Frank.

"Why do they call the ranch beyond the Chollas (a kind of cactus) *National* Ranches?" inquired Jo.

"Because the Mexican Government, about 1814, set it apart to keep horses upon, and they called it the Rancho de la Nacion."

"Campo means camp, I believe; but what does Point Loma mean? and La Jolla?"

"Loma is hill, and La Jolla was named from the holes or caves found there."

"It is getting late," said the Professor, rising. I am much obliged to you, Mr. Dare. Any assistance that I can give you while you are passing examination you must not be afraid to ask for. Of course, I mean any *honorable* assistance that I can give you, for sometimes, I am sorry to say, help is given which is dishonorable to the examiner and examinee."

[NOTE.—The reader will bear in mind

that neither these nor former remarks refer to the *later* superintendents and examiners of San Diego, who have been in every way a credit to the county. In fact, many of these irregularities took place in other counties many years ago.]

"Yes, I have heard that unfair help is sometimes given," said Frank. "I have no doubt that my papers will be fairly marked, and I desire no other help."

The boys bade the Professor good-night, and retraced their steps towards home. As they crossed the street Frank saw a roll of papers lying on the ground which he picked up and placed in his pocket, intending to see what they were when he got to his room. After they reached the house, Jo showed Frank his room, gave him a lamp, and telling him to study all night, if he wished, went to his own room, while Frank sat down and began to examine his roll of papers.

"The Fishermaiden."

[Translated for the JOURNAL, from the German.]

BY GEORGE GOSSMAN, M. A.

Thou joyous Fishermaiden
Come bring thy bark on Land,
Come let us sit together
Caressing hand in hand.

Your head upon my bosom,
Contented rest with me,
For without fear you've trusted
The dangers of the sea.

My heart is like the ocean
With *storm* and *ebb* and *flow*
And many a pearl lies hidden
Far in its depths below.

SAN FRANCISCO, Oct. 3rd. 1878.

NECESSITY OF EDUCATION.—A sound and liberal education is the surest pathway to success in all pursuits. The chances of the educated man are *ten to one better* than those of the uneducated.—*John M. Gregory, LL. D., Prest. Ind. Univ.*

THE INTRODUCTION OF WESTERN LEARNING INTO JAPAN

BY PROF. M. M. SCOTT.

[Imperial University, Tokio, Japan.]

No. II.

The arrival of Commodore Perry in Japan, in 1854, was one of the greatest eras in the history of the country. Isolated, geographically, and by choice socially and politically, from all other nations, her people thought that they were superior to all others in science as well as in morals. When they observed the immense ships of the American commander steaming up the Bay of Jeddo, against both wind and wave, their astonishment knew no bounds. Their curiosity was excited. When some of the Japanese officers went on board the flag-ship, and observed the dignified but cordial bearing of the American officers, it was concluded that the Tojins* were not such barbarians after all. The Japanese saw that those nine ships, with immense guns, could, if so disposed, at a single broadside, raze their great city to the ground. So those who boarded the ships to scoff returned to doubt. They saw behind all this immense exhibition of power some thing more potent than the inert pride of superiority. Quick to see anything to their own advantage, they set themselves to work to find out whence this evident superiority of the foreigner came. It was seen at once that in modern civilization they were hopefully behind. The first thing then to be done was to reconcile the people to the opening of the country to foreign intercourse, to organize schools after the foreign model, and invite scientific men from abroad to instruct them.

Accordingly, a school was established in Tokio, having the name of "University," but in reality anything else than a univer-

* Foreigners.

sity. In this school, which began in 1869, teachers of English, French, and German were engaged. The less said about these teachers, in many cases, the better. The Japanese ran to extremes, and so much respect did they have for Western knowledge and people, for a while at least, that any sailor, butcher, or bummer that applied was almost sure to get a remunerative position. They soon found, however, that all men of fair skins were not brimful of knowledge or unpolluted as to morals; and I am happy to say that, at the present time, the instructors are, as a rule, an honor to their respective countries, and highly satisfactory to the Japanese students and officers. The University, as now organized, consists of two schools, viz: The *Dai Goku*, or special departments of Law, Literature, Chemistry, Civil and Mechanical Engineering; and the *Dai Goku Yobe Mon*, or General Course. Each course consists of four years. The prerequisites for entrance to the General Course are to read and write both Chinese and Japanese fluently, and to have a knowledge of the history of both countries, in addition to the ability to pass a satisfactory examination in English studies, about as far, I should say, as the second grade of a San Francisco Grammar School. After passing a satisfactory examination at the expiration of the four years' course, the student is at liberty to choose as to which one of the special courses he will take. The General Course differs in some respects from Western schools, in that Greek and Latin are not studied, English and Chinese being substituted. In all things else I am inclined to think the course fully as thorough. The teaching in the lower grades of the course is done entirely by Japanese teachers, so that when the students come under the charges of the foreign instructors they write and speak English very well. There are about five hundred students in the Academic Course. As before mentioned, there are four technical departments, and it is designed that the General Course shall prepare a sufficient number to fill each of these. In July of the present year there were about thirty graduates from the special departments, the first that have completed the schedule of studies. Viewed in itself this is a matter of little importance; but looked at from a comparative stand-point, it is of vast significance.

Five and twenty years ago Japan was hermetically sealed, regarding her Emperor as divine, all foreigners as barbarians, and despising their learning. The present year witnesses in her capital, situated hard by the Emperor's castle, a flourishing university, where, within the same walls, are educated the former proud and privileged *Samouri* and the humble farmer's son.

Space will not allow me to set forth the moral and intellectual qualities of the Japanese students in this brief article. I hope to do this at some future time. Mention has been already made in this article that instruction is given in English, French, and German. After four or five years' trial this plan was abolished, and at present all the teaching is done in English and Japanese, with the exception of twenty or thirty students, who were so far advanced when the plan was abandoned that it was deemed best to let them finish their course in the language they had learned. The control of the University differs essentially from any college or institution of any other country. There is a formidable array of directors and sub-directors, secretaries and sub-secretaries, janitors, curators of apparatus, librarians, messengers, and dozens of others whom I forbear to mention, for the simple reason that I find no name in English to express their grades—the Japanese being far superior to our mother English in expressing the various little gradations of official

and servant rank. To a thorough-going Yankee, accustomed to a driving life, all this is incomprehensible. Time is *not* money in Japan, else the coffers of the nation would always be filled.

Of the professors in the *Daigoku*, beside the Japanese, Yale College claims three for her graduates; Harvard, two; Union, one (also the Supt. of Ed.); West Point, one; Oxford, two; and London University two. The other teachers are from various English and American colleges. Of the Japanese teachers one is a graduate of Oxford (19th wrangler in mathematics of 1876), one from Yale, one from Harvard, and one from Michigan University.

Hitherto the practice has obtained of sending the senior students abroad to finish their course; but as before mentioned, it was discontinued the present year, and I fully believe for the interest of both college and students. A college organized at home by Japanese and foreigners acquainted with their wants is surely more likely to meet the peculiar cast of mind found here than a foreign school.

As a rule, the students belong to the class who were formerly the civil and military retainers of the *Daimiyos* or barons. The hereditary aristocracy of the country, they differ in some respects from that of other countries, in the fact that they are very nearly all poor. Poverty, however, in Japan, carries with it few of the inconveniences, either praetical or social, that it does in America. One's wants are few, and therefore easily satisfied; and it is, or rather was, before contact with the money-spending Occidental, honorable to be poor. As a consequence, now, few of the students who really care for education, have the means to go abroad to pursue a course of study in our expensive colleges, or even to pay for their cheap food and clothing while studying there. In consequence of this the Government furnishes not only free education in the University of Tokio, but board and incidentals as well. Thus it will be seen that, in the very commendable effort to put her young men upon a par with those of other nations, Japan is the most generous of all. When a student enters the second year of the General Course, he receives a sufficient amount of money from the Government to defray all expenses incident to college life—an amount, however, which would not be sufficient to supply one of our young men with cigaritos amd pomade. The young man, however, as a matter of good faith, is required to sign a contract with the Government, with sufficient surety, that he will pursue the prescribed college course, or if he voluntarily stop, his bondsman is to repay the amount the Government has, at the time, advanced. It is also required that, after graduation, he be at the disposal of the state at a fixed salary, for a term of years, varying, I believe, from eight to ten.

VARIETY.

[Concluded from suggestions for Primary School Work.]

BY MRS. H. M. SOLOMONS.

The children have learned and understand how to combine and separate numbers to 10, with their shells, or beans, fingers, dots, and lines, and, with them, give results, with astonishing rapidity, yet deprive them of their counters and put promiscuous questions, very few will be able to give prompt and correct answers. Now is the time for the teacher to bring her ingenuity into play, to give a daily drill in mental and written arithmetic, so that the pupils shall have apparently something new every day.

One day a story may be told something like this: "Mary came to school with three pretty buttons, and Susie gave her four more, how many did she have?"

Hands go up. Teacher calls for answers; then tells which was correct. Satisfaction on faces of those who were *right;* disappointment in others. All interested and anxious. Teacher continues story: "When Mary went into the yard at recess she was so careless as to lose two. How many had she then?" All try to give answers as before. Teacher designates who is to speak. All who agree put hands down. "But when Mary went home she gave two apiece to each of her two sisters, how many did she give away? How many had she left?" The story may be continued as long as time permits.

Next time the teacher may give a different story to each pupil, requiring all to be ready, to tell whether the answer be correct or not.

Again, a teacher asks a pupil how many are five and four. Answer is given. Who can make up 9 in a different way? This exercise creates great interest. The pupils are very eager to show their ingenuity. No answers are taken which have been previously given.

At another lesson, all the pupils may be required to write on their slates as many operations, resulting in a given number, as they can think of. In fact, there is no end to the variety which can be given to lessons in Arithmetic for young pupils.

EPIDEMICAL THEORIES AND METHODS.

BY J. M. GUINN, M. A.

[Anaheim, Los Angeles County.]

Long ago, in the good old days of Hercules, before the schoolmaster had gotten into the habit of going abroad, there lived in Attica a quaint genius called Procrustes, who had a wonderful penchant for equalizing the altitudes of his neighbors. The length of a certain iron bedstead was his ideal of the proper human stature; and upon this bedstead he measured every poor mortal who fell into his hands. If his victim was too lengthy he cut him off; if too short, he stretched him out to the proper length.

In my cynical moods I have sometimes been uncharitable enough to think that the spirit of Procrustes has taken possession of some of our modern schoolmasters. For with their iron bedsteads of theories, systems, methods, and grades, the loppings off and the stretchings out of the mental statures of their pupils are agonizing enough to evoke the avenging shade of Hercules from the Plutonian realms, or wherever else that shade may be.

Now, as the discussion of theories and the illustrating of methods and systems of teaching, form a very large part of our institute work and fill the pages of our educational journals, may it not be possible that there is too much theory, too much method and system in our teaching; and is it not true, too, that some theories and methods become contagious, and, seizing upon one victim after another, spread throughout the profession, then subside and for lack of new victims die out and disappear. Whoever will carefully peruse the history of teaching for the past thirty years may trace the rise, prevalence, and disappearance of half a dozen or more of these epidemics of theory and system that have raged among the pedagogues and pupils of the intervening period.

Some thirty years ago, in England, appeared that famous epidemic known as the "March of Intellect." A few educational philanthropists, animated with the very best of intentions, but with no idea of execution, nor of the "eternal fitness of things," conceived the idea of expurgating ignorance and crime from the masses, by homeopathic pills of knowledge. Science and literature, stripped of all savoriness, were boiled down to bitter

essences, and these were administered to the *ignobile vulgus* with the most solemn convictions that they would act as panaceas to cure all moral and mental disorders. Schools and lecture-halls, like hospitals, were founded for the cure of ignorance; and into these the smoke-begrimed operatives of the numerous Coketowns were inveigled to be treated for ignorance.

Even the street-arabs, the wharf-rats, the gutter-snipes, and the hulking mud-larks of the slums of London, were caught up and carted off to interminable jumbles of schools, located in unsavory localities, there to be ground through the mills of knowledge, "as per system, schedule, blue-book tabular statement, A to Z," by the dearest and prosiest matter of fact Gadgrinds and McChoakimchilds acting as chief millers. Even the House of Commons was petitioned for an enactment to put intellect and morals by legal force into the unregenerate sons and daughters of poverty and crime. The epidemic ran its course. The schoolmaster, who Lord Brougham said was abroad, came home. Intellect, that was supposed to be marching over the land in seven-league boots, was found to be hobbling along at a very slow and limping pace. And the philanthropic educators with the best of intentions, but with no idea of the fitness of things, found at last that crowding corpuscles of knowledge into pinched intellects would not expand them, nor would pouring imperial gallons of fact into bottomless vessels fill them.

Then followed the black plague of the whys and wherefores—the deductive or drawing out system; the theory of which was that the pupil must give the why and the wherefore of every statement and principle of science before advancing beyond it. "Twice two are four." Why? "If you take one from two one remains." Why? "The verb must agree with its nominative in number and person." Why? And it was why this and wherefore that, until the puzzled and bewildered school-boy came to look upon his teacher as a sort of incarnate interrogation point, forever lying in wait to spring questions upon him. And out of every combination of figures, and from behind every axiom of science the affrighted pupil saw the Gorgon head of a why staring at him with its stony gaze. But the plague of the whys abated, and in the mild form it has now assumed is no longer epidemical.

Next appeared that famous epizootic, object-teaching. During the prevalence of this epidemic horses and whales, elephants and crickets, the beasts of the field, the fowls of the air, and the fishes of the sea, were figuratively taken to pieces, in the school-room, by the bantlings of science, lead by the teacher to the tune of herbivorous, carnivorous, and graminivorous. The lisping infants were taught to prattle such simple words as opaque, translucent, and transparent, ductility, malleability, and incompressibility. Then juvenile athletes performed feats in mental gymnastics, that would have discounted the twelve labors of Hercules, and put to blush the calf story of old Milo.

I have a very vivid recollection of my first interview with a worthy ex-State Superintendent of Schools, who has sometimes been called the Horace Mann of the Pacific Coast. The object-teaching epidemic had just broken out in this State, and the Superintendent was laboring under a very severe attack of it. To the information volunteered that I was a teacher, lately arrived in the State, and desirous of securing a school, came the queries, "Where were you educated?" and "In what schools have you taught?" With some degree of pride I referred him to a diploma received from the classieal department of a leading Eastern college, and to three years' suc-

cessful teaching in schools of different grades "Oh we don't care for such things in California." "Do you give object-lessons in your schools?" "Never have made them a specialty; of course, use objects for illustrating in recitations very often." "Well, we want teachers in this State who can use the object-teaching method—and *none others*." Sadly I left his office. Gone for naught were years of study. Useless were years of experience in teaching. The one thing needful to teach in the schools of California I had not. Oh, avenging shade of Pestalozzi, that thus, in my most impecunious moments, you should punish me for my neglected devotions, the great *objectist!*

This object-teaching epidemic has assumed a very mild form, and is no longer dangerous to newcomers who have not had it.

But another is spreading over the land. Oral-teaching is to be the next play of the schoolmasters and mistresses. The edict has gone forth that the text-books are the bane of our schools. It would not surprise me greatly if some investigating committee, in this millennial year of investigation, should report against their use, and recommend that hereafter all instruction be given orally.

A few years since, in one of the Western States, I made the acquaintance of a teacher whom I shall call Smith (for no other reason than that that was not his name). Nature had designed Smith for a Demosthenes or a Daniel Webster, but cruel Fate had forced him to take up the pedagogical birch. Smith was a talkist. He believed eminently in talk. Somewhere in his researches among educational literature he had found this wonderful truth: "You can talk more into a child in half an hour than it can learn from books in a week." Smith believed that he had found the "open sesame" to the treasure-caves of knowledge. So, when he organized his next school, he announced to his pupils that he would spend a part of each day in lecturing them upon the duties and responsibilities of life and other topics. For a time all went well. It was something new, and the boys listened. But unfortunately Smith possessed that not uncommon art, the art of rendering an idea malleable. He could beat out a grain of thought thinner than gold-leaf. Two hundred and eighty thousand leaves of Smith's ideas would not make an inch of sense. The boys were not long in finding out that there was nothing in his talk but cheap rhetoric and worn-out anecdotes. And every day, whilst Smith was soaring to Empyrean heights upon the wings of eloquence, the boys were descending to Stygian depths in mischief. Whilst Smith feelingly related that beautiful story of Little George Washington—the boy who could not tell a lie—hoodlum Dick was *feelingly* feeling with a crooked pin for a tender spot in the anatomy of the boy in front of him. Whilst Smith waxed eloquent upon his inspiring themes, the boys whacked each other's ears. Yet, notwithstanding the inattention of his pupils, Smith rattled away at them with his senseless buncombe, possessed by the idea that he was talking knowledge into them—and, for aught I know to the contrary, still believes that the only way to reach the sensorium is by drumming upon the tympanum—still believes that the only way to burst the upper crust of ignorance is by exploding under it blasts from the dictionaries.

This oral-teaching plague, like the others, will have its run—will pass through the various epidemic stages, then abate only to be followed by some other epidemical theory.

Now, although I may have treated these reform theories and methods rather irreverently, and to the firm believers in them almost sacrilegiously, yet I have no quar-

rel with any one of them, *per se*, nor with all of them taken collectively. Even in the worst of them there is much good—much that can be made useful and profitable by the judicious teacher in the work of educating. Even in that gadgrindian deluge of fact, when it rained and hailed "fact, !" "fact !" "fact !" for more than forty days and nights, upon the heads of the unregenerate, I have no doubt that, at least, eight persons in all were saved.

Now, as I have said, I have no quarrel with these, but I do have a few not very mild invectives laid up for that teacher, who with his cast-iron methods and Procrustean bed of theory, will attempt to inflexibly mold every little mind with which he has to deal, after his iron model, or who will mercilessly lop off or stretch out every individuality to suit his ideas of mental stature.

It is true that education is a war upon the inherent barbaric tendencies of the race. It is true, too, that there is a little of the original savage left in every man, woman, and child of us. Yet it would hardly be a very popular missionary scheme that which would ask royalty for an invention to convert the most abject heathen into a Christian gentleman by a single turn through the mills of a system.

If there is no fitness, no adaptability in the prevailing theory, method, or system of teaching to the minds with which you are dealing at the time, why follow it through all its details simply because it is the fashion? If mind were like matter, and certain immutable laws applied to it, then it might be possible to have a science of teaching; then it might be possible for some Newton to discover a binomial theorem by means of which a given quantity of mind could be raised to any required power. But whilst the law that applies to one mind may be an exception to every other mind, it seems to me to be a little premature to form a science of teaching, and not a little cruel to have a Procrustean bed of system or theory to equalize mental stature,

Now it is my humble, opinion that if you would be truly successful as a teacher, you must evolve from your "inner consciousness" (or from wherever such things come), your own methods, theories, and systems of teaching. I do not say that you are never to use those of others, it would be impossible to have one entirely different, nor would this be desirable; but whatever theory, method, or system, original or copied, you use, you must so transfuse it with your own personality that to you it may become a living entity, and not a dead formula. No poll-parroting of theories, however good they may be, no servile following of methods, however complete in themselves, can give you success. *Know this and heed it*—the elements of success lie in yourself, and not in any mechanical appliances of method or system. These may aid you in your work, but beware that you do not allow them to become your master. In this lies the evil of theories, methods, and systems of teaching. The teacher in time allows these to become his masters, instead of keeping them, as they should be, his servants. He offers up his individuality as a sacrifice upon the altar of formalism, and humbles himself with more than Oriental servility at the feet of the high-priests of education. I believe in every teacher standing up, in the Godlike majesty of his manhood, and proclaiming his freedom and equality before the most sacred law of his being—the right to own himself.

Away with this truckling servility to leadership, and this idolatrous hero-worship of a great name. Let every teacher pride himself upon owning himself, upon preserving his individuality, and not on his wearing the badge or the brass collar of Pestalozzi or Horace Mann; and I say this with no disrespect to these truly great men.

Whatever of any one's theories or methods the teacher needs, let him take; what not, reject. It is for him to judge how much or how little he needs. It is for him to judge how much or how little to apply in his school work.

SCHOOL EXERCISES.

"School Exercises should give pleasure." "Whatever (as a general principle) gives pleasure to children always serves to promote their development in some way. This statement is not only the enunciation of a great truth, but one entirely antagonistic to the old system of education, which held that "study was valuable in proportion as it was distasteful, and that culture was to be sought in thwarting rather than in gratifying natural inclinations." "The converse of this proposition is also true: Whatever is distasteful to children generally, and whatever is performed as mere task work is of but little worth in promoting the true development of the child. Much of the work which forms the staple of school instruction at the present day is of this character. Reading lessons that children cannot comprehend; memorizing the words of a text-book; beginning a subject by learning definitions, instead of facts; premature study of grammar; the reasoning processes of arithmetic at too early a period; spelling and defining words largely in advance of their use, are all illustrations of this *distasteful* work, and examples of waste both of time and effort."

We make this quotation from a distinguished writer on education for the purpose of emphasizing the truth it contains.

There is little doubt that the secret of the dislike for school shown by many pupils lies just here—in the distasteful work required by their teachers, or the manner by which work is made distasteful. Scores of children leave school as soon as the grammar course is finished—sometimes before—and hundreds of others would leave if they could, because there is no charm in school work—no real pleasure—no love for books begotten—no fascination and spell for the soul. Now the teacher may not be responsible for *all* of this. Home-life, tastes, habits and desires inherited, school manuals, arbitrary rules of boards and trustees, or superintendents, etc., etc., come in for their share. Still the grammar-school teachers ought to be able to correct some of these things. I think it properly belongs to teachers to dictate and control many reforms that should be made. They cannot control the home-life, perhaps, or inherited desires and tastes and habits; but the most intelligent, most prudent, and the most active and advanced grammar-school teachers of both sexes should combine to make a power that should be felt in reforming manuals and arranging courses of study that should carry WISDOM on their face.

After all, the teacher, the living teacher, is to control the child in great degree—is to shape his course—to lead him on to love books and study—or not. If the teacher does *not* do this—neglects it—and only dictates, and demands tasks of the pupil; punishing *always*, if tasks are not learned; not ever even pretending to at all shape the future—still it is done, unconsciously, perhaps, but done, nevertheless—and the child leaves school and takes the path into which it has been driven, because school was not made attractive. I have personally known many pupils who have left school solely because study was made distasteful, or not made pleasant. I have occasion to remember one teacher in particular, who I feel certain is responsible for scores of pupils leaving school before their advanced course was finished. I meet teachers now, whose course daily in the school-room is such that pupils are not drawn to school by their influence, and if *that* were the only tie, they would leave.

I admit that it is a very difficult thing to throw charms about studies that are prescribed by some cast-iron manual, which leaves no play-room for teacher or pupil, deviation from which, or from the examinations of some inflexible Board, subjects the victim to proscription—to loss of position—to prospective starvation. And the "Manuals" prescribe exactly the things which form the "staple of school instruction" above quoted. Their authors are to be held responsible for their work, I trust, if there is any such thing as a judgment-day for such work. But there must be law, and law is adamant. Its province is to thunder. Still Mercy CAN exist at the same time—Portia with the pound of flesh. She brings Hope—and the true teacher—the one of a thousand—the good angel of the school-room—is to play upon that dark pathway with the celestial radiance of her soul—to throw prismatic light all over it, if there be any way possible—to kindle beacon-fires of hope on every point that is possible to scale, and so lead her little band of workers by her magnetism and cheerfulness through the Sloughs of Despond—by the Lions—past Giant Despair, onward and upward toward the summit where stands "The House Beautiful." C.

EDITORIAL DEPARTMENT.

Governor Irwin's Address at Sacramento.

Governor Irwin's address, which appears in our SUPPLEMENT, is a carefully prepared and able document. It is worthy of the high station and pre-eminent ability of the Chief Executive of the Commonwealth, and may be considered a tribute to the intelligence of the body of educators before whom it was delivered. It marks an epoch in our educational history, for it is the first instance that a Governor of California has ever addressed a body of teachers.

For these reasons, as well as for the choice and fitting language in which many noble thoughts were expressed, our teachers are deeply grateful.

But, while on the whole we may award the meed of the highest praise, there is one point where the address is open to adverse criticism. We allude to the Governor's reference to the cost of our schools. The Governor compares the cost of our public schools, annually amounting to about $2,800,000, with the cost of the executive, legislative, and judicial branches of the State Government, amounting to $1,200,000; and from a comparison of these figures draws the inference that the limit of expenditure for popular education has been reached, if not already passed.

There are two comments to make on the Governor's argument. First, that even if his statistics are correct, the conclusion he arrives at, is still not necessarily a legitimate one. Looking at the question from a study of the principles of political economy, is it not true that the limit of expenditure for any object is only reached when the purpose of that expenditure is accomplished? Thus, if the State has undertaken to organize and support an efficient system of popular education, then only will the limit of expenditure be reached when that system is made as nearly perfect as the most generous expenditure of treasure can possibly make it.

Second. We believe the Governor's statistics are open to the imputation of being fallacious, inasmuch as they institute a comparison between things that bear no actual relation to each other. Our School system is a part of the organization of the State not regarded as a unit, but as composed of its counties, townships, and districts. Our schools penetrate to the farthest corners of the land. They cannot be said to be an in-

tegral part of a centralized government, whether it be denominated the State Government or the municipality of San Francisco.

The incidental fact that a percentage of school revenue is derived from what is denominated a "State Tax," has logically no more bearing on the argument than would have the precisely analogous fact, that San Francisco pays annually a sum into the State fund much larger than she receives in return, a sum, in fact, ten per cent. of the entire annual expenditure.

This process of reasoning brings us to this conclusion. For purposes of comparison, we must take the entire cost of the Government of the State, exclusive of the schools, and compare this with the expense of maintaining a system of popular education; or, on the other hand, compare the cost of our State Superintendent's office and our State schools, such as the University and Normal School, with what Governor Irwin calls the State Government.

The following statistics will vividly and briefly show the actual relations of these several expenditures to one another:

The total expense for schools in fiscal year 1874–75, was nearly $2,800,000; total expenditure for State and County Government, $11,608,314.92.

This, our readers will observe, is but twenty-four per cent. of the total expenditure for governmental purposes; not a large proportion when it is considered what is provided for by this outlay. It includes the salaries of 4,500 teachers and 500 janitors; the cost of books for 1,800 school libraries; for many thousand indigent pupils; for repairs; for at least 150 new school-houses at an average of $1,500 each; for incidentals, such as stationery, apparatus, and supplies of every description.

In these schools about 210,000 pupils may be educated at an annual per capitum cost of $13⅓.

If we compare the cost of the State schools and the State Superintendent's office with the cost of the central government at Sacramento, we find the following figures:

Total cost of State Government, $1,200,000; State Superintendent's office, $9,000; State Boards of Education and Examination, $1,300; State Normal School, $30,000; and State University $90,000.

That is, the educational portion of the State Government costs only ten per cent. of the amount expended on the governmental machinery with which it can properly be compared.

Governor Irwin's address seems pervaded with a tone of alarm and regret that the public school system of California should cost more than twice as much as the localized government at Sacramento, with its branches at San Quentin, Napa, Stockton, Berkeley, and San José.

To us it appears surprising, that any one can for a moment think it should be otherwise. What the Governor denominates the State Government consists of not more than four hundred persons. That the salaries of so small a number of public officials should reach even the forty per cent. of the amount required for a system of instruction which employs the constant services of more than twelve times that number of teachers, savors of injustice and inconsistency rather than of that economy with which every good and patriotic citizen serves his country.

A word more before we dismiss the subject. We do not for an instant imagine that the Governor had the slightest intention of making any fallacious or damaging comparison. We credit him with being as sincere and warm a friend of popular education as we ourselves are, or as is any teacher in the land. But the fact remains that the comparison is unfair, and should not have been made. Our schools cost none too much, and our teachers are paid none too well. Whenever our schools are so well supported that they can accomplish absolutely the best results, whenever our teachers are so well paid that the profession will attract and retain the ablest and most competent instructors, then, and not till then, will it be time to inquire if the people are expending too much money in the cause of popular education.

The Results of Bad Legislation.

The teachers of California may congratulate themselves that our last legislature so kindly ignored the public schools. They did

but little when they might have done much ; and what was done, were far better undone.

Evidence of what we say, is the vicious amendment to the school law, which commands the issue of State Educational Diplomas to those who have taught five years, and who have held a first-grade *city or county certificate.*

In many sections of this State, it was formerly customary to grant first-grade county certificates on second grades, and second grades on third. Hence, under this law, there have recently been granted scores of Life Diplomas, which were obtained on State Educational Diplomas, issued to persons who cannot pass a successful examination for a second-grade certificate.

Still worse ; we are informed on good authority, that in certain counties of the State, certificates have been issued to persons without any examination, who could by no possible chance have stood the simplest test. These certificates were, in most instances, second or third-grade county. Under this most sapient law, county certificates are now as good as State. The Educational Diploma is granted on them. Then comes the Life Diploma, on the face of which is written : " The State of California, through its Department of Public Instruction, presents this LIFE DIPLOMA to ———, satisfactory evidence having been presented to the State Board of Education, that by *superior scholarship*, and long and successful experience, he is worthy to be admitted to the *highest honors of the Profession of Teaching.*"

If language means anything, this conveys a clear idea. A third-grade teacher is not eligible to a Life Diploma, merely by reason of long service.

But this wise law presents another feature besides a question of certificates. It is already beginning to affect the standing and wages of teachers in the State.

The time was, when a second, and even a third-grade State certificate, was valuable in the eyes of teachers and trustees alike. It is not so now.

Trustees in sending for teachers, demand those with diplomas or first-grade certificates. And this to teach second and third-grade county schools, and *for second or third-rate salaries.*

Herein lies the essence of the evil ; and we are not sure but that this was the exact result contemplated by those who framed the law.

It tends directly to reduce salaries, by making the large class who hold inferior grade certificates, appear less desirable, and, therefore, cheaper teachers.

There are now so many teachers holding Life and Educational Diplomas, that if trustees hire others, it is generally at a reduced salary.

We trust an earnest and combined effort will be made by all intelligent superintendents and professional teachers to remedy this evil.

Religious Instruction in Our Schools.

So much is constantly being said by evangelical ministers on the subject of religion in the public schools, that the following extract is timely. It is from *The Independent*, one of the ablest and best edited of the evangelical papers of the day. Indeed, this paper, and the *Christian Union*, (Dr. Beecher's) may be considered as the conspicuous American representatives of a liberal yet thoroughly orthodox Christianity.

The Independent says : The election of members of the school-board, held last week in New Haven, turned upon the direct issue of Bible-reading and religious exercises in the public schools of that city. No other question was involved. The Catholics of the city united with those Protestants and others who were dissatisfied with the previous action of the board ; and the two combined achieved a decisive victory. The Bible-reading ticket polled 4,881 votes ; and the other ticket, that represented the policy of the board, had but 1,963 votes. This, of course, settles the question for the present that the previous *regime* will be re-established. We say for the present, since it is only for the present. It will not restore harmony or permanently dispose of the subject. There is but one way to reach a final settlement of the school question ; and that is to put it in the same category with the church question and deal with it in the same manner. The State, in this country, does not undertake to administer religion in the church or through the church ; and the great

principles upon which it is organized clearly require that it should not make the attempt in the public school, especially since the school is supported by compulsory taxation, imposed upon the people without any reference to their religious convictions and preferences. It is not just to the taxpayer in this way to coerce his support of religious instruction or religious worship.

Our Third Volume.

According to previous announcement, the third volume of the JOURNAL will begin on January 1st, 1879. This would give but ten numbers for the current year.

But the gratifying assurance comes to us from scores of readers, that more rather than fewer JOURNALS would be preferred.

As a token that we thoroughly appreciate the popularity this periodical has achieved, and that we are determined to merit the continuance of their good opinion, we present our readers with the SUPPLEMENT at the end of this month's issue.

We consider it an extra number, and have so paged it. It is paged consecutively, so as to be bound in with the other numbers of the JOURNAL.

The advertisements are so arranged that they can be left out in binding ; and this is true of all advertisements in Volume II.

In addition to this SUPPLEMENT, we propose to present our readers with an extra issue, in the shape of a December SUPPLEMENT, to be numbered twelve.

It is designed, so our readers will observe, to have our November issue numbered nine, its supplement ten, the December number eleven, and the December SUPPLEMENT twelve.

In this way, our readers will get their full allowance of twelve numbers, and we are enabled to commence Volume III. on New Year's Day, 1879.

Acknowledgement.

We return our thanks to Prof. W. W. Anderson and the teachers of Santa Cruz county for the large list of new subscribers sent from their recent Institute. Also to Supt. Edsinger for the same favor from Amador county. San Mateo likewise sent a large list of names. At date of writing there are four Institutes in session, from which we know we shall hear.

We observe one thing very clearly. Those counties which have intelligent and conscientious superintendents have the best teachers. And the ablest superintendents and teachers invariably take the JOURNAL. The remark that every good teacher takes some educational journal, is daily exemplified in our experience.

And here we wish to say a word right to the point. We do not expect every teacher to take this JOURNAL. If it is not good enough, if its tone does not suit, if it does not supply the educational pabulum needed, then teachers need not take it. But this does not absolve the teacher from the *duty* of taking some educational periodical. We call it a duty, and so it is. It is an obligation, and a similar one to paying a debt. The man or woman who receives a monthly stipend for doing a certain thing in the best way he or she can, is morally bound to find out what the best way is—what improvements are constantly being made, and to adopt some of them.

Our Science Record.

We are fortunate in having secured the aid of Prof. J. B. McChesney, in the preparation of our monthly SCIENCE RECORD. Mr. McChesney is one of our ablest educators. A man of scholarly attainments, and a member of our Academy of Sciences, he is also a progressive teacher. We can promise the readers of the JOURNAL a faithful and accurate record of scientific discovery.

EDITORIAL NOTES.

Considerable matter is omitted this month on account of our Supplement and of the Summer Institutes, accounts of which appear in this issue.

Articles from the following contributors have been received, and will appear in an early number of the JOURNAL: From Mr. E. Brooks, Mrs. Aurelia Griffith, and Miss A. M. Manning, of San Francisco; Prof. W. W. Anderson, of Santa Cruz; Prof. E. W. Hilgard, of the State University; and Profs. C. B. Towle and A. W. Sutphen, of Solano county.

A Gentle Reminder.

A few subscribers are still indebted to us on Volume II. Will they kindly remit before the beginning of the New Year? No apologies for delay are necessary. We have not before needed the money, and knew it was perfectly safe. But now, that we have expensive improvements in preparation, all due us will be exceedingly welcome. So we trust to receive a prompt payment of subscriptions on the present volume, and an equally prompt renewal.

Our future looks very bright. None of our old friends desert us, and new ones come in by scores almost daily.

Sooner or later, every teacher who takes the JOURNAL, induces some other teacher to subscribe, and frequently sends the name of the District Library. This is a good work. It brings the JOURNAL before the Trustees, and thus indirectly, as well as directly, benefits every worthy teacher. So let it go on.

On our Advertising.

We desire to call the especial attention of our readers to our PUBLISHERS' NOTES. These are not altogether advertisements, though we believe that if they were, they would be not the less interesting. And here we desire to say a word or two to our readers on this subject of our advertisements. In the first place, they are all interesting; they refer to books, school furniture, and other articles in which teachers are and should be interested. Secondly, they are inserted by representative business houses, whose patronage is an honor to the JOURNAL and a benefit to the profession.

We have no quack advertisements of any kind; everything offered through our pages is standard. For these reasons we believe our advertising pages are well worth careful reading, in each suceessive issue, for there is always something new offered each month.

Unprofessional Conduct.

We have heard several instances of teachers underbidding one another to secure positions. Such a practice cannot be condemned in too strong language. It tends to permanently lower salaries, and to degrade the teacher's calling in the eyes of every community where it is practiced.

Any person who thus offends against professional morality, should be deprived of further power to harm the profession, by having his certificate revoked.

For the protection of our calling, we shall publish the name and address of any offender, and strongly urge the revocation of his certificate.

On account of the pressure on our columns caused by the publication of the proceedings of the State Association of Teachers, we are compelled to omit much interesting matter this month. We have received from the Hon. E. T. Blackmer, superintendent of San Diego, and delegate from that county to the Constitutional Convention, copies of the educational amendments proposed for the new State Constitution. These proposed amendments have all been submitted to the Committee on Education, and such of them as are indorsed by that Committee will appear in the next JOURNAL.

We have also received advance sheets of the Annual Report of superintendent Mann, of San Francisco. This report includes valuable matter of general interest to the profession, and copious extracts will be given in our next issue. Accounts of Institute proceedings in Amador, Calaveras, Colusa, and San Mateo will also be given.

SCIENCE RECORD.

Artificial Gems.

Two French chemists, MM. E. Frémy and Feil, quite recently startled the jewellers of Paris by announcing that they had discovered a process by means of which the ruby, the sapphire and the Oriental emerald could be manufactured by the pound at a nominal cost. From time immemorial alchemists have endeavored to transform the baser metals into gold and silver, and mod ern chemists have sought to crystallize carbon but their labors have resulted only in disappointment. But now comes the report from the Academy of Sciences at Paris that the Oriental emerald, a gem which sometimes commands a higher price than the diamond even, can be manufactur-

ed at wholesale. The importance of the announcement becomes apparent when it is understood that these gems are not imitations but are genuine stones, that is, the chemist would not be able by analysis to detect any difference between the natural and the manufactured gems.

The process may be described briefly as follows: Argillaceous earths or clay is in chemical language a salt, being a compound of aluminum oxide and silicic acid. Corundum, the mineral which contains the ruby and the sapphire, is aluminum oxide variously colored. It will be seen at once that if argillaceous earth can be separated into base and acid, and the base is then crystallized and properly colored the real gems will be formed. This MM. E. Frémy and Feil accomplished by exposing kaolin and lead oxide in equal parts to an intense heat for several weeks. During this time the silicic acid leaves the aluminum oxide and unites with the lead forming the silicate of lead. Upon cooling the compound there is found an upper stratum of the silicate of lead, and beneath it round clusters of the most beautiful crystal of argillaceous earths. If nothing but kaolin and lead oxide were placed in a crucible the crystals would be as colorless as glass and are known as diamond-spar but if a small quantity of bi-chromate of potash be added the ruby will be produced, and if in addition to the potash some oxide of cobalt be added the sapphire is obtained. By varying the quantity of the coloring material various tints can be produced. In view of the above statements may not the time be near at hand when we shall be able to order our precious gems and no lean purse place a ban upon the sale ?

Academy of Sciences.

At the regular October meeting of the California Academy of Sciences in San Francisco Mr. Del Mar read an exceeedingly interesting paper on "The Poorer Nations of Europe." The difference in civilization, wealth and general prosperity of nations is often ascribed to influences arising from race, religion or climate, but Mr. Del Mar dissents from the generally recognized belief, at least as far as European nations are concerned, and makes coal and land-tenure the two most important factors in determinating a nation's prosperity. He referred at length to Portugal as a country in which the land had been held for centuries by a privileged class; the result being that the great mass of the people, unable to obtain any tenure to the soil, became disheartened and were destitute of all those incentives to economy and thrift which prevailed among those who owned the land.

Let a man feel that the farm he works is his own and he at once becomes directly interested in its producing power. If he can make two heads of wheat grow where one grew before he is so much the richer, and all those appliances which tend to economy in ploughing and harvesting crops become of great interest to him. Let a whole nation be actuated by these and similar motives and national wealth is sure to follow.

The presence or absence of coal deposits were also mentioned as having a great influence on the prosperity of a nation. That Mr. Del Mar is correct in this opinion is apparent on but a momentary glance. Remove the vast coal deposits from the United States or England and immediately both nations will commence to retrograde.

Peculiarities of Vision.—In a late number of the *Popular Science Monthly*, Mr. Francis Galton in an article on "Composite Portraits" states that "the two separate impressions received by the brain through the stereoscope do not seem to me to be relatively constant in their vividness, but sometimes the image as seen by the left eye prevails over that seen by the right, and *vice versa*."

That European civilization is slowly but surely breaking down the barriers of Chinese exclusiveness is shown by the fact that the production of coal in that empire now reaches the amount of 3,000,000 tons annually. The coal-fields of China are said to be the most extensive in the world.

In consequence of the growing interest in industrial drawing and of the few facilities in the state for instruction in this subject, the Faculty of Cornell University have consented to receive teachers as special students and to afford them all the advantages which the University offers in the various departments of drawing. The departments now established are free-hand drawing, mechanical engineering, civil engineering and architecture. Special students will enter the same classes as the general students and on the same terms. No one but teachers will be received. No entrance examination will be required and no diplomas will be given. —*Popular Science Monthly*.

Tempel's comet (period about 7 years) was rediscovered by Tempel himself at Areetri, near

Florence, on July 19th. It is faint and of no especial interest; but has been regularly observed for some weeks. Encke's comet has also just passed its perihelion. It is so situated, however, as to be observable only in the southern hemisphere. On its next return, in 1882, it will be well situated for observation in our own country.

The fifth annual report by Behm and Wagner upon the population of the earth has just been published, for the present year. The estimate of the authors makes the whole number 1,439,000,000. The allotment for Europe of this sum is about 312,500,000; of Asia, 831,000,000; of Africa, 205,250,000; of Australia and Polynesia, 4,500,000; and of America, something over 86,000,000.

It has been a universally accepted opinion that the physiological effects of marriage with in close relationship are bad. Mr. George Darwin, son of Charles Darwin has made some statistical observations, the results of which are that the widely different habits of life of men and women in civilized nations, tend to counterbalance any evil from marriage between healthy, closely-related persons. Mr. Darwins conclusions are strengthened by the investigations of more recent observers on the same subject.

NEWS RECORD.

Our Record closes on the 24th of October.

Foreign and Domestic.

Colorado at the election held Oct. 1st. elected the entire Republican ticket.

The yellow fever still rages with unabated virulance. There have, thus far, been fully 10,000 deaths.

The City of Glasgow Bank failed on Oct. 2nd. for $50,000,000. Our English cousins appear determined not to be behindhand in brilliant financial operations.

Austria has completely occupied Bosnia and Herzegovinia, and those provinces will probably hereafter constitute a part of the Austrian Empire.

The Ameer of Afghanistan having refused to permit the passage of a British Embassy to his capital and having insulted the Envoy, the Government of India is making extensive preparations for war. At date of writing, English forces had already set out to enter Afghanistan.

The Constitutional Convention of California convened in Sacramento Sept. 28th. Hon. J. P. Hoge of San Francisco was elected president, and J. R. Johnson, editor of the Oakland *Times*, secretary.

A terrible famine and pestilence is reported to exist in the interior of Brazil, where no rain has fallen for two years. The people perishing for want of food and water, have fled from their homes, many of them dying—sometimes whole families together—before reaching a place of refuge.

Vesuvius is in a state of active eruption. The crest of the cone has given way and a new cone is forming.

Austria thus far has lost about 4,000 men in her efforts to occupy Bosnia and Herzegovina. The Hungarian ministry have all resigned, in disapproval of Austria's military and financial policy.

The famine in North China has carried off ten millions of people.

The yellow fever appeared in Madrid early in October.

About the 20th of October the Nile river commenced to rise rapidly and inundated its banks, near the Damietta mouth. It covered one hundred and twenty square miles. Twenty villages have been submerged, and from six hundred to one thousand lives lost.

The latest advices indicate that the treaty at Berlin has not altogether settled the Eastern question, even temporarily, and that peace is not yet assured in Turkey.

The Russian army has returned in force to Adrianople; the Turks are making extensive preparations to fortify and strongly garrison Constantinople.

Cardinal Cullen, the famous Irish prelate, died at Dublin on the 23d of October.

The telegraph likewise announces the death of the Archbishop Dupanloup of Orleans.

On Oct. 23d a terrific tornado, starting in the Gulf of Mexico, swept up the Atlantic seaboard. Its path was marked by ruin and devastation on land and numerous wrecks at sea. The storm was most severe in Pennsylvania, Delaware, New Jersey, and New York. In Philadelphia alone the damage is estimated at $2,000,000. Hundreds of lives were lost at sea, and thirty or forty on land.

The total loss of life and damage to property cannot yet be ascertained.

St. Petersburg newspapers strongly advocate Russian aid for the Ameer of Afghanistan, in his struggle against invasion from India.

Negotiations are said to be pending between Austria, France, and England, with the object of securing a common treatment of all European questions, as a counterpoise to Russia, and to substitute for the Kaiser Bund an *entente cordiale* between France, England, and Austria. Count Von Beust's appointment as Embassador to France is believed to be connected with this project.

Tammany Hall has nominated Augustus Schell for Mayor of New York.

Personal.

One of the most remarkable men of history is Gen. Von Moltke, the great Prussian General, who on the 26th of next month will be seventy-eight years old, and is still as vigorous as most

persons who are twenty years younger. His physical preservation is largely due to good habits, and in this respect he is an example for the imitation of others.

Rev. Samuel Lunt Caldwell, a graduate of Waterville College, Maine, lately a professor at Newton, has just been elected President of Vassar College by a unanimous vote of the Trustees, in place of the late President Raymond.

Earl Dufferin, the retiring Governor-General of Canada, will sail from Quebec on the 12th, with public ceremonies. His successor, the Marquis of Lorne, with Princess Louise, has left Roseneath, England, *en route* for Canada.

A Board of appraisers appointed to value the estate of the late W. S. O'Brien, one of the Bonanza kings, estimate it at $9,655,459.

The Chairman of the Committee on Education of the Constitutional Convention is Judge Joseph W. Winans, of San Francisco. Judge Winans is an able man, of cultured mind and liberal education. He has always been deeply interested in education, having been at one time President of the San Francisco Board of Education, and at present one of the Regents of the State University.

There are a number of teachers in the California Constitutional Convention. Notable among them is Superintendent Blackmer, of San Diego, who has, appropriately, been placed on the Education Committee.

John Bidwell, of Chico, received a gold medal at the Paris Exposition for wheat weighing sixty-eight pounds per bushel.

A. K. P. Harmon has presented the University of California with a fine gymasium, work on which will be commenced at once.

Among the Americans who were decorated with the cross of the Legion of Honor, and created Chevalier of that Order, on Oct. 21st, in Paris, are ex-Superintendent John D. Philbrick, Presidents F. A. P. Barnard and Andrew D. White, Professors W. P. Blake, E. H. Knight, and Thomas B. Edison.

Educational.

The new Educational Law adopted by the Chambers and sanctioned by the King excludes the Bible and religious teaching from primary schools of Holland.

The school fund in Indiana amounts to $8,007,095, which is larger than that of any other State in the Union.

It appears that, while the exhibit of the American common school system at the Paris Exposition showed our superiority in this branch of popular education, the French had much to teach other nations in regard to advanced and technical courses. For instance, the new school for Political Science at Paris is something unique and valuable. It receives young men who have taken what we call the first degree, and gives them a post-graduate course in History, Political Science, Jurisprudence—everything, in fact, valuable for making a young man efficient in public service—and its graduates have a preference in the civil service.

Diplomas were recently presented to twenty-eight graduates of the Blackwell's Island Training School for Nurses.

F. E. Whiting, recently of the Eliot School, Boston, has been elected Professor of English and English Literature in Tokio University, the National University of Japan.

The New York public schools opened on September 2d with 102,749 children, or 3,568 more than last year, although one large school was closed for repairs at that date.

It seems to be true that phonetic spelling is to be introduced into the Philadelphia public schools.

C. A. Gower, Superintendent of the Saginaw schools, has been appointed State Superintendent of Michigan, to take the place of H. S. Tarbell, who resigned to accept the Superintendency of the Indianapolis schools; and Mr. Gower has been nominated to fill the vacany on the Republican State ticket for State Superintendent, to fill the vacancy occasioned by the resignation of Mr. Tarbell.

Thomas S. Lambert, author of Lambert's Physiologies, and other books, nearly one year ago was indicted for perjury and was sentenced to the State Prison for five years. His attorneys took an appeal to the Supreme Court, but his case has not yet been reached in the higher Court. Not having any rich friends willing to go on his bail bond, he has been compelled to lie in jail. He has been permitted to exercise in the corridor and allowed the use of books and writing materials, and it is said that he has written several works, and also secured a patent for an improved oven of a cooking-stove. Dr. Lambert was at one time one of New York's prominent educators.—*Indiana School Journal*

The Government of Greece has just established a Normal School at Athens. A great deal of attention is however given to the ancient Greek classics, to the exclusion of elementary studies.

On Sunday, October 20th the Bishop of Northern California, Monsignore O'Connor, with imposing and appropriate religious ceremonies, laid the corner-stone of a new Roman Catholic Cathedral and College in San Francisco. The cost of the two buildings was originally estimated at $500,000, but it will probably reach a quarter of a million more.

Gold Medals were granted at Paris to Henry Barnard, Hartford, Conn., for the *American Journal of Education;* to Harper & Bros., for text-books for elementary instruction; to Prof. William Swinton, for text-books; to Prof. Guyot, for Geography, etc.

Among those to whom silver and bronze medals were granted, we notice the following well-known names:

Silver Medals.—To D. Appleton & Co., of New York, text-books for elementary instruc-

tion; A. S. Barnes & Co., of New York, text-books for elementary instruction; Cowperthwait & Co., of Philadelphia, Penn., series of text-books for elementary instruction, and set of charts for teaching the first steps in reading; W. F. Phelps, of Whitewater, Wis., hand-book for teachers; E. S. Ritchie & Sons, of Boston, Mass., set of physical apparatus for higher elementary schools, with a case; Walter Smith, of Boston, Mass., publications and appliances relating to industrial art education; Thompson & Brown, of Boston, Mass., Eaton and Bradbury's Series of Mathematics, Philbrick's Tablets, and various text-books; Van Antwerp, Bragg & Co., of Cincinnati, Ohio., text-books; J. P. Wickersham, of Lancaster, Penn., set of *Pennsylvania School Journal;* Louisville (Ky.) School for the Blind.

Bronze Medal—To American Metric Bureau, Boston, Mass., publicatious, three charts, and cabinet containing seventy-two pieces of apparatus; A. H. Andrews & Co., of Chicago, Ill., school desk, noiseless slates and other apparatus for schools; T. W. Bicknell, of Boston, Mass., *National and New England Journal of Education* in bound volumes, current issues of the same, and of *Primary Teacher* and *Good Times;* Clark & Maynard, of New York, Anderson's Series of School Histories and various other text-books; Ginn & Heath, of Boston, Mass., text-books for elementry instruction, and music books and charts by L. W. Mason; J. B. Lippincott & Co., of Philadelphia, Penn., text-books for elementary instruction, and set of Cutter's anatomical charts.

Boston has adopted a new "Course of Study." Some of its most prominent features are oral instruction in the primary grades, *less language and more elementary science*, and a definite and decided attempt to harmonize school-life and labor with after-life and labor. We shall comment on this course at length in a future issue of the JOURNAL.

OFFICE OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION,

Sacramento, Oct. 3, 1878.

ALBERT LYSER—DEAR SIR: The question, "Can a County Superintendent, who has made a wrong apportionment last year, by apportioning five hundred dollars and thirty-three dollars library money, amend the matter by giving four hundred and sixty-seven dollars this year, out of which comes the library money?"

If I understand the question, it is essentially this, can a Superintendent, who last year apportioned to a district more or less of the school moneys than it was entitled to, correct the mistake in this year's apportionment. In my opinion, while an affirmative answer to this question would not be in accordance with the strict letter of the law, it would be in accordance with its spirit, and with equity and justice.

The following extracts from the circular issued from the State Superintendent's office in July, are applicable, and may prove of service:

"3. The School Library Fund is taken from (not in addition to) the State School Fund, apportioned according to Section 1858, Political Code. This fund must be expended in the purchase of apparatus, or books *recommended by the State Board of Education*, and for no other purpose whatever. (See Section 1712, Political Code.)

"4. Neither the State nor County Superintendents have any discretionary power in the apportionment of school moneys. The terms of the law are explicit and mandatory, and a violation of them is punishable as a misdemeanor, and by removal from office. (See Sections 176 and 772, Penal Code; and, also, 'An Act providing for the removal of civil officers,' etc., approved March 30, 1874." EZRA S. CARR.

OFFICE OF THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION,

Sacramento, Oct. 21, 1878.

For the present year there was apportioned in August $1.01 per census child. It is estimated that the February (1879) apportionment will be $5.864, making a total for the year of $6.85; $1.04 less per census child than the apportionment of 1878. Respectfully yours,

JEANNE C. CARR.

The essential operations in arithmetic, which all pupils should understand, are the four rules, common and decimal fractions, the tables of weights and measures, and interest. All the rest of the text-book may be omitted without much loss by all but high-school pupils.—*John Swett.*

NOTES, QUERIES AND SOLUTIONS.

Arithmetical Signs, etc.

To the Editor of the Journal: I submit the following in regard to the equation, $2+3\times4-6\div2=?$

There *can* be but *one* solution and answer to *any* such equation of the first degree as this. If there were two or more the exact results of the whole of mathematical analysis would, in many cases, be equivocal. The correct solution is as follows:

Add 2 to 3×4, giving 14; from this subtract $6\div2=3$, leaving 11 for the answer.

There is *no other* correct solution of this equation, for the following reasons: 1st. In Arithmetic or Algebra the sign + or — between two numbers or quantities effectually prevents them from being multiplied together, or by any other number or quantity beyond the above signs, unless the first numbers are all inclosed in parenthesis, brackets, vincula, bars, etc. Thus $(2+3)\times4$, or $[2+3]$ 4 or $2+3\times4$, would all signify that the *sum* of 2 and 3, or 5 was to be multiplied by 4, giving 20 for product. But not otherwise. 2d. It is a fundamental rule in such operations, to *first* reduce all quantities or numbers to their simplest forms, and *afterward* to find the value of the unknown quantity or number. 3×4 is not in its simplest form, but its prodnct, 12, is; $6\div2$ is not, but 3 is.

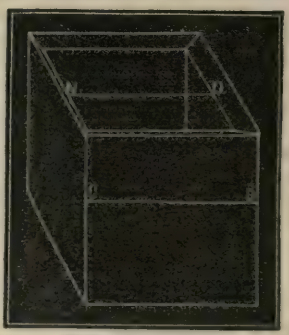
Therefore, applying this rule, we have the equation above in the new and simple form of $2+12-3=?$ which any schoolboy ought to solve. The anwer is eleven, and there is no other. For further information I refer your readers to the definitions and first principles laid down in any good Algebra. Frank Soule, Jr.,
University of California.

"A hollow iron globe one inch thick holds one gallon of water. The same quantity of iron cast into the form of a hollow cubical box, whose sides are one inch thick, will hold how much water?"—Query in *Educational Weekly*.



AB=9.6 inches.
IH=7.6 inches.





NO=5.2 inches.
CD=7.2 inches.

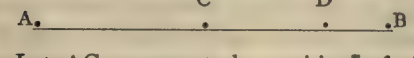
A gallon of water is measured by 231 cubic inches. The diameter of a sphere whose volume is 231 cubic inches is the cube-root of the quotient of 231 cu. in. divided by $\frac{1}{6}$ of 31.416; which is 7.6+ inches. Since the iron containing the water is one inch thick, the iron globe must have a diameter of 9.6+ inches. The volume of a sphere 9.6+ inches in diameter, is $(9.6)^3\times.5236$, or 463.247+ cu. in. The volume of the iron in this globe is 463.247+ cu. in—231 cu. in., or 232.-247+ cu. in.

The cubical box may be considered as made up of six equal sides, in the shape of frustums of square pyramids. Each frustum, since it is one inch thick, would have its lower base two inches greater each way than its upper base. The volume of such a frustum is $\frac{1}{3}$ of a cubic inch greater than that of a parallelopipedon one inch in height, having bases whose sides are a mean between those of the upper and lower bases of the frustum. Each side of the required box would contain $\frac{1}{6}$ of 232.247+ cu. in. of iron, or 38.708+ cu. in. The parallelopipedon being one inch in height, or thickness, the area of its base is numerically equal to its volume. The square root of 38.708—·333, or 6.2— inches is the side of a square one inch greater than the interior dimensions of the required box. This box, therefore, would have inner dimensions 5.2— inches every way, and would contain 140.6 cu. in. of water, or .61— of a gallon. C. B. TOWLE.

EDITOR JOURNAL: I find in the *Educational Weekly* (Chicago) for September 19, 1878, page 101, but credited to some other paper, the following question:

"An army, twenty-five miles in length marches twenty-five miles. At the moment of starting, a courier was dispatched from the rear to the front. He overtakes the head of the army and returns to the rear just as the army have finished their twenty-five mile journey. How many miles does the courier ride?"

SOLUTION



Let AC represent the position of the army at the beginning of the march. The courier starts from A to reach the head of the army when it has arrived at some point D between C and B, the line CB representing twenty-five miles, the position of the army at the end of the day's march. The courier must travel the distance from A to D, while the head of the army is traveling from C to D; and again the courier must travel from D back to C, while the head of the army is traveling from D to B. If the army travels at the same speed during the march, and the courier rides at the same speed all day, the distance AD will have the same ratio to CD as the distance CD has to DB. Let the distance CD be represented by x; then,

$$AC+x : x :: x : CB-x; \text{ or}$$
$$25+x : x :: x : 25-x,$$

which gives the equation $x^2=625-x^2$; from which $2x^2=625$, and $x=17.67+$ Then AD+DC, the distance the courier rides, is $25+2(17.67+)$ miles, or 60.35+ miles. C. B. TOWLE,

Vallejo High School.

Articles for teachers in the November magazines:

Harper's.—A Free Kindergarten; The New Sequoia Forests of California; The Sea Islands.

St. Nicholas.—Towed by Rail; Monkeys and Dogs to the Front.

Appleton's Journal.—The Dialects of our Country; Concerning Clams; Subaqueous History.

The North American Review.—Kin Beyond Sea; The Readjustment of Vocations.

The Atlantic Monthly.—The Nationals, their Origin and their Aims; Americanisms; Presidential Elections.

Scribner's.—A Night with Edison; Chambley Fort on the Richelieu River; A Windstorm in the Forests of the Yuba.

Lippincott's.—The Harvesting Ants of Florida; The Paris Exposition of 1878; Music in America.

Popular Science Monthly.—The Differences between Animals and Plants; Education as a Science; Experiments in Sound (illustrated); Plants and the Peopling of America; The Place of English in the Higher Education.

EDITOR JOURNAL: In the sentence, "John, the would-be assassin, was imprisoned," how would you dispose of "*would be?*

Would you, in speaking of two sisters, say, the two sisters do, or the two sister does? Please answer through the JOURNAL.

SUBSCRIBER.

1st. Words are classified into parts of speech according to their *use*. "Would-be" evidently describes "assassin," therefore we call it an adjective.

2d. We say, "The two sisters do," and see no possible reason for doubt. The adjective *two* modifies nouns in the plural; even if it were used as an adjective-pronoun, it would still require a plural verb, as, "The two do this."

MR. EDITOR: Will you give the following problem a place in your columns:

What is the length of the largest board that can be laid flatwise on the floor of a room twelve feet in width and sixteen feet in length, the board to be one foot wide?

At first sight it seems quite simple, but on examination, difficulties arise which I have been able to overcome only by long and tedious processes. I presume some of your readers may be able to solve it by the usual methods, and will communicate through the JOURNAL. V. P. R.

GREEN VS. BLACK BOARDS.—Will some one answer the question which I could not answer satisfactorily, put at the Teachers' Institute at Santa Cruz: "Would not *green* boards for school use be better for the eyes of the pupils than those now in use? JEANNE C. CARR.

Duties of Teachers.

1. To know that a pupil's true education is a *growth* consequent upon the proper exercise of all his faculties.
2. To know that growth and discipline come through the acquisition of useful knowledge.
3. To know that neglect, mistakes, blunders, or carelessness on your part are disastrous to pupils and most difficult to remedy.—SUPT. DOTY, of Chicago, in *Educational Weekly*.

Educational Intelligence FROM STATES AND COUNTIES.

CALIFORNIA.

SOLANO COUNTY.

We had hot work at the Solano Co. Institute last month. We were delegated a Committee of one to proceed thither in the interests of the JOURNAL; out of the abundance of our love for the work we also volunteered our services mentally—to wax valiant and fight in all fierce discussions that might arise. Full of resolutions we started in the foggy freshness of the dawn, though not befogged consciously, and reached Suisun on one side and Fairfield on the other at 10¼ o'clock A. M., We inquired on the Fairfield side where the Temple of Minerva was; it was pointed out, distance 50 rods. We asked if the Institute was holding sessions there? "No, not as I know of" startled us; we asked where the teachers were "sitting." Didn't know, mebbe in Dixon. Something was "sitting" up there. "Where is Dixon?" I mildly inquired. "Twenty miles up the road." I glanced quickly along the rails to see the train just going out of sight. I then asked where the Suisun temple was—"Turn that corner and go till you strike a plank-walk; follow that." I struck the walk in due time and walked down "among the flags"—after the "little ark" that saves our children. "Does the Institute hold its meeting here to-day?" "No" "Why?" Because the School Marms have gone to Dixon." "How can I get to Dixon?" "You can go up on the evening train." As I had but one day to spare I did not appreciate the suggestion. "No other way?" "Yes, freight train goes up at 2 P. M. mebbe not certain." I walked through the flags of Suisun thoughtfully, then through the dry stubble of Fairfield getting warmed up for the work, thermometer standing 92° in the shade back to Suisun. Looked about the "City of the Marsh," counted 49 horses tied to posts, many colts, some mules, some pigs wandering, as by their sweet will among the reedy streets; listened to the shouts of their many drivers, but could find no convention, it was "twenty miles away." Looked for hotel, looked for restaurant, looked for a cool spot anywhere; sat down in a saloon kept by a genial son of Portugal; read all the soiled fragments of many editions of the Call, went out and walked among the flags; could not see "Miriam" anywhere, could not see the freight train; went back

and ate a square meal at the Latin Restaurant; tried to sleep; a million flies tried to sleep on face and head at same time; we fought; victory perched on their banners and I fell back out to the sidewalk in good order; saw the freight train going by, which did not stop, but kept going by for half an hour; I never saw a train keep at it so persistently; I never saw a train so long; never saw one moving so slowly; took a nap under the awning and went to New Guinea in a dream and collected shells with my dear friend Wallace—"Do you remember Wallace?—the Natural Selection man, you know.—Woke up; freight train still going by; I gave up. It is going by yet, I suppose;—went over to Fairfield; "When does the train go down to the boat?" "6 P. M."; walked back and strayed among the flags; saw some boys fishing; looked as if they had fished since the advent of the boy Moses and caught nothing; got against the coldest brick wall I could find and fought flies and looked toward the sea; could see a blue ribbon of water and a sail; stretched our arms towards a cool summer cloud of the dear fresh fog, and longed for a baptism. It was like seeing the grottoes of the sea in mirage from the centre of Daniel's furnace. We sat until 6 o'clock P. M. —eight mortal hours— then tumbled into the down train and flew to the sea. That was hot work we had at the County Institute of Solano.

P. S. But Prof. T. did the task for us better than we could have done it. So blunders have their compensations sometimes.

Sept. 1878

BUTTE COUNTY.

CHICO, CAL., Sept. 24, 1878.—ED. JOURNAL: The fall term of our schools in Butte is opening under very favorable circumstances. There is a growing interest in the public schools, and they are receiving good solid support from those who know how valuable in a republican form of government is the dissemination of knowledge among the masses. Many of our out-lying districts are provided with commodious buildings, and have them well supplied with furniture, apparatus, etc. Those which are not so well fixed are making efforts to keep pace with their more fortunate neighbors. Most of the schools are provided with teachers for the fall and winter, and many of them are already in session.

At Bangor Mr. Smullen is teaching his third term, and is giving the best of satisfaction. Mr. Clapp, assisted by Mrs. Boynton, Miss Woodward, and Mrs. Mattson, takes charge of the Oroville schools, in place of S. S. Boynton, who has left the profession to engage in mercantile pursuits. Mrs. Shekels will soon return from Plumas County to take charge of the Central House school. L. F. Norman and wife and Miss McGregor will again hold forth in the Cherokee schools, where they have taught for the last three years.

At Nelson Station the patrons of the school are erecting a fine brick school-house. It will cost when completed about six thousand dollars. We have not learned who will teach there the coming term.

Mrs. L. A. Curtis will teach again at Messilla. Mrs. C, is one of the best lady teachers in Butte, is an earnest and persistent worker, and is always successful in her school. Miss Burt is teaching at Minshew, and is giving very general satisfaction. Miss Hasty is teaching her second term at Lovelock, and is proving herself a success in the school-room. Miss Hoyle succeeded Miss Hibbard in the Inskip school, the latter being obliged to resign her position there that she might fill her engagement to teach her old department in the Chico school. Miss Hoyle is a young teacher, but she is doing good work with her pupils. Miss Elliot is still teaching in Meadow district, but will close her term in a few weeks. Miss Roberts, another young and promising teacher, is winning bright laurels in her school at Keefer's Mill. Mrs. Floyd is about closing a successful term at Dogtown. George Chambers is finishing a term at Forest, and Miss Leggett will soon close at Powellton. D. W. Braddock, assisted by Miss Baylis and Miss Calhoun, has the Biggs school, while Mr. Warwick and Miss Greenwell have the school at Gridley. All are first-class teachers, and will do full justice to their pupils. Mr. West has taken the school at Oregon City, and Miss Lynch is teaching her first school at Morris Ravine.

In Chico several changes have been made in the corps of teachers. The teachers for the present term are: W. A. Wash, late of Visalia, Principal; O. E. Swain, Grammar Master; J. M. Martin, late of Hollister, Second Grammar Department; Mrs. L. L. Sproul, First Intermediate; Miss Louise Hibbard, Second Intermediate; Miss C. H. Bissel, Third Intermediate (Miss B. is lately from Kansas, where she has taught long and successfully); Miss Jennie Whiteside, First Primary, and Mrs. L. Billett, Second Primary. School opened on the 16th inst., and the attendance is now about two hun-

dred and seventy. The classes are all well organized, the teachers are experienced in their respective grades, and everything in connection with the schools seems to indicate a prosperous and pleasant term.

F. A. Peachy will take charge of the school at Little Chico on the 30th inst. He is an experienced teacher, and will carry along his school rapidly. Miss Gardner succeeds Mr. Lochrie in the York school—Mr. L. having gone to Utah to reside. Miss Treat, a late graduate of the State University, has opened a school at Nord, and is doing good work there. C. A. Woodman and Miss Addie Hobart, two late graduates of the Normal School, have charge of the Dayton schools. It is needless to say they are meeting with success.

Miss Conger is engaged to teach in Antelope district, and Miss Bland will soon commence work at Cana. Miss Phillips is teaching at Pine Creek, and Miss Blake is at Webster. The Butte Valley school will open about the first of November, in charge of Mr. Emmert, who is now teaching in Big Meadows, Plumas County.

Mr. Holman, who taught at Nelson, last year, has left Butte, and is teaching at Taylorville, Plumas County. Mr. Van Fossen has gone to Red Bluff, and Mr. Cressy has decided to locate in Oregon.

Thus we have lost five first-class teachers, including Mr. Lochrie and Mr. Boynton, from our ranks. We are sorry to lose them, but if they can do better elsewhere, or in other business, why, success to them.

So, Mr. Editor, our teachers are nearly all hard at work molding and shaping the youthful mind. We have many first-class teachers in the county, together with many who are young and inexperienced, but, on the whole, it would be hard to make much improvement in our corps.

We are all sorry the State Teachers' Convention met at a time when few if any of us could attend. Still, we hope much good was done by those who were fortunate enough to be in attendance. Respectfully, etc., S.

SONOMA COUNTY.

Sonoma County ranks the fifth in the State in the number of census children, there being 7,531 in the county between the ages of five and fifteen. The tax for the County School Fund was placed at the minimum amount by the Board of Supervisors at their last session, and the entire amount to be raised at the rate of $3 per child is $22,593. This of course does not include the poll-tax, but is a property tax, rated at fifteen cents on each and every $100 of taxable property in the county.

A special tax for building or repairing schoolhouses has been levied during the present school year in Meeker, Mount Jackson, Santa Rosa, Burnside, and Mountain View districts, in three of which now, elegant, and commodious school edifices have been erected. In Monroe district the patrons turned out *en masse* and repaired the school-house themselves, and now the pupils and teachers have as comfortable a building as they need.

A singular circumstance occurred at the new school-house in Santa Rosa district. The building was occupied almost as soon as completed, and the slating used on the blackboards not being dry, peeled off, and coming in contact with the hands of a number of the pupils, caused sores to appear, the preparation evidently containing poisonous matter. We are not advised what kind of slating was used.

The question of grading of schools came up at the last session of the Institute and elicited considerable discussion, some fears being expressed relative to a proposed change in the grading in this county, but superintendent Davis informs us that the schools have been well graded, and will remain as they are unless circumstances compel some change.

There are 103 school districts in the county, managed by 160 teachers, when all are in operation—151 teachers being present at the last Institute. The presence of the Pacific Methodist, and Christian Universities at Santa Rosa, the "Institute" at Healdsburg, and numerous other excellent private seminaries, causes the number of high schools in the county to be small, there being only two, one at Petaluma, under the management of professor Hutton and his most estimable lady, where the full course prescribed by the State Board of Education is taught, and the other at Santa Rosa, under the management of professor M. Dozier and professor G. P. Anderson, where the same course of study is pursued with the exception of the languages.

The teachers of the county are taking a lively interest in the Teachers' Association of California, and Superintendent Davis has received numerous inquiries relative thereto, both personal and by letter, and at the session at Oakland, next January, "Old Sonoma" will be well represented. ALPHA.

SACRAMENTO COUNTY.

Miss Effie Stickney commenced her second term in Jackson district July 1st, and will close in five weeks more. The school is in good condition.

Mr. W. H. Leek commenced his second term in Pleasant Grove district August 6th, with a roll of fifty-five pupils. The improvement in discipline and in point of progress made in this school since Mr. Leek took charge is very great.

Miss S. W. Wilcer has been teaching very successfully in Grant district for some time. The trustees intend supplying the school with improved furniture, that used at present being scarcely fit for further use.

The term in the Galt school was commenced by Mr. C. C. Clements September 2d. Number of pupils entered, sixty-four. During the short time Mr. Clements has been teaching this school he has shown himself equal to the task of bringing order out of chaos. For his earnestness and zeal, as well as for his success, he is highly commendable. The people of Galt are alive to the educational interests of their town, as is manifested in the very liberal subscription list for the building of a fine large school-house, the outside dimensions of which are thirty by fifty feet, two story elevation, and tower for bell on northwest corner. The building when completed will cost about $3,000. It is then to be furnished throughout with improved furniture. Two teachers will be enough for the first year, but if the school census increases next year in proportion to the last, three teachers may be required.

ALAMEDA COUNTY.

The Grand Jury of this county, in a recent report, call upon the authorities to stop the disgraceful practice of hazing, which has to some extent prevailed in the State University at Berkeley. The circumstance which occasioned this report was the thorough peppering of a Sophomore with some duck shot, by a friend of a Freshman, who was selected for hazing by a party led by the Sophomore. The house in which the Freshman lived had been previously invaded by some lawless spirits, and the owner determined to take some efficacious measures to secure peace. A well-loaded shot-gun was the means, and a temporarily disabled Sophomore the result. The remedy is a severe one, but the outrageous conduct of the students of many of our colleges would indicate it as the only effectual mode of dealing with a determined spirit of unrest and lawlessness.

SAN JOAQUIN COUNTY.

Ambrose H. Randall, the able principal of the Stockton High School, a scholar of superior merit and ability, has been appointed a member of the State Board of Examination. He fills the vacancy caused by the resignation of prof. Allen, of the Normal School. This is one of State superintendent Carr's best appointments.

HUMBOLDT COUNTY.

Schools are all running quietly in this county. There will be quite a number of new school-houses built this year.

Already Eureka has commenced two buildings—Hydesville one, and Larribee one.

SANTA CLARA COUNTY.

A tax of $5,000 has been voted by the citizens of the Hester district, between Santa Clara and San Jose, to purchase a lot and erect another school-house in that district.

FRESNO COUNTY.

Work on the new $10,000 school-house in Fresno City is progressing very well. Forty-six schools are now in progress in this county, with forty-nine teachers. One other will open soon. Chamchilla and Valley View districts are erecting new houses.

LAKE COUNTY.

There are now thirty-one districts in this county.

We learn that the Guenoc school has been in excellent condition of late. J. G. Johnson is teacher.

The Lower Lake school is prosperous. It is under the control of J. F. Scott and Miss S. E. Stinson.

The school in Cobb Valley has done a good work during the past season. It has been faithfully and successfully taught by M. L. Bryant.

Miss Kate Martin, of the Mountain district, closed school on last Friday, after a term of seven and a half months. She has returned to her home in San Jose, accompanied by the good wishes of many friends.

AMADOR COUNTY.

The Institute of this county had a very interesting and valuable session in Jackson in October, an account of which will appear in our December number. Among the resolutions passed was the following kind compliment, for which we modestly return thanks:

Resolved, That the PACIFIC SCHOOL AND HOME JOURNAL, being conducted by an able educator, and devoted to the interest of our public schools, should receive the hearty support of all teachers.

SUMMER INSTITUTES.

SANTA CRUZ.

ED. S. AND H. JOURNAL: According to agreement, your reporter appeared at the Court House in the city of Santa Cruz on Tuesday, Oct. 8th, to take note of the proceedings of the Teachers' Institute, which was then to be held.

The morning was devoted to organization and the deciding on a programme, with some light general skirmishing on the best methods of teaching reading.

In the afternoon Mrs. Deputy Superintendent Carr was introduced and offered some suggestions of value to those teaching ungraded schools. She urged teachers to make a study of their pupils—a sort of diagnosis of their characters, dispositions, and capabilities, so that they might deal judiciously with each one.

Teachers objected, that with fifty children to govern and push up to a certain grade by a given time, no such "adaptation" was possible.

Mrs. C. agreed that the number was far too great. In the public Kindergarten schools of St. Louis, Mo., twenty-five was the limit. The people here are not prepared for the best standards, still, common-sense must always be used in working inside prescribed rules. They should not be considered cast-iron.

The question of text-books came up, and Mrs. C. being asked: Why, with intelligence at the head of the School Board, we were still obliged to use McGuffey's characterless, worthless Readers, and to create disgust for History by giving the pupil the husks "compiled by Swinton?" replied that she received scores of letters putting precisely such questions before her. [Here the reporter was inculpated.] She explained at some length how it is possible for the legislative body to overrule the soundest decisions of the Board of Education. The people having selected by their votes educated persons whose business it should be to select the best text-books, then leave it in the power of men less informed to frustrate their wisest efforts.

The agent of the book publisher manages to secure his ends through the Legislature. When a change from bad to best is called for, the cry can immediately be raised of "robbing" the people by so doing. She would like to show them the admirable Reader in use in the St. Louis schools, but the charge would at once be made that she was the paid agent of the publishers.

With respect to Swinton's History she reiterated a former statement, that it was intended for *teachers* only. [Here many murmurs arose, intimating that the book was as worthless to teachers as to pupils. It was made up of names and dates concerning a mass of important facts. The very spirit of history was ignored.]

To return, the speaker showed that the one hundred and fifty members of the Legislature who are paid ten dollars per day for their services, had spent three weeks over bills for the benefit, not of the children of the State, but of certain publishing houses. When they talk of retrenchment, and propose the lowering of teachers' salaries as an economic measure, they should first talk of the machinery of *waste* in their own body.

The acts of the State Board of Education are frequently referred to the Attorney-General for revision or approval. [It certainly would astonish an educated foreigner to learn that before the principal of a high school can introduce the study of English literature to his classes he had to ascertain from head-quarters if such a course would be contrary to State laws. That the question was put before the Attorney-General, and he decides that the literature in question might be used as accessory to McGuffey's Readers, but must not supplant them. Because anything that tends to diminish the number of school-books now in use is illegal. It touches the pockets of the publishers. It was therefore "by the skin of his teeth," to use a slang phrase, that Professor Anderson, of Santa Cruz, found himself out of danger when he put into the hands of his pupils Scott, Longfellow, Macaulay, and Shakespeare.]

The best methods of teaching Geography, Grammar, Arithmetic, and Spelling were illustrated between the discussions. The teaching of Grammar was deprecated by many. At least, it should be deferred to the last school year. By reading pure English, and having their habitual mistakes corrected—having to correct them themselves in composition—children acquired good language. The Grammar itself is a dry and useless study to all but older pupils.

Swinton's Analysis might be useful in the hands of a judicious teacher, but not as a text-book for the pupil. There was a very lively clash of arms on Swinton, whose fame does not promise to be immortal in this State. His Analysis, like his History, is said to be full of errors.

How can your reporter do justice to the good

feeling and clear, good sense that was manifested by the members of this Institute! A former one at Watsonville had left so tiresome an impression on the mind. On this occasion the teachers felt free to open their minds to each other. Mrs. Carr's presence gave great satisfaction. All she said was most welcome. Her address on those true heroes, Sarmiento and Pestalozzi and Froebel, was listened to with breathless interest. Then the lecture in the evening on Education, as a Means to the Elevation of our Social Life, was well received.

Mr. Frank Darling read an admirable paper on The Value of Literature to the Teacher, after which, your reporter arose and advanced the opinion that, notwithstanding the vast sums expended in this republic for our public schools, our youth were not educated, in any true sense of the word. High schools and normal schools have been provided, examinations and graduations have been in order for many years, yet men like Agassiz and Higginson, and the enlightened class generally, those whose minds have been disciplined by wiser methods, declare that the dreary uniformity of our drill "overburdens the memory and leaves the mind wholly uncultivated." Professor Seeley, who occupies the chair of Modern History at the famous University of Cambridge, England, says, "All cultivation lies in the humanizing and educating power of great works of genius." "What we want are intellectual tastes." If we have not these our education is a failure. Arithmetic, Grammar, Geography, are tools, as it were. Without literature in our schools from the old English and German Fairy Tales in the primary rooms, to Robinson Crusoe, to Hawthorne's Tales for Children, and so on up through our best writers to Shakespeare, we are left to our own thoughts merely. The cultivated teacher is wholly out of place in a public school. She has no time, neither is she permitted to educate her pupils. So she finds herself perplexed, discouraged, and weary when her mechanical duties are ended. Appealing to imagination in her pupils, enriching them by the sweet and tender thoughts of genius, would have kept her own soul alive. As it is, she is stranded, high and dry, bereft of all her early aspirations, a victim to a system which excludes the wealth of all the ages, and crams the young mind with numbers.

Professor Anderson was of the same mind. The best authors should be introduced into the school-room. They fill the young with pure and noble thoughts.

Professor Norton, of the Normal School, gave some Lessons in Natural History, and illustrated his method of teaching Physical Geography. He showed on partially blighted shrubs, which had been brought in, the mould. He spoke of the insects which are so destructive to our shrubs and fruits, and a microscope having been procured, and some damaged branches, he detached destructive insects and placed them under the glass. The speaker explained that, since we have imported fruits from all climes, all species of destroyers have been brought with them, and our orchards are feeling seriously the effects. The phyloxera, coccus—the latter so frequently found on the orange and oleander—were described. It is the female insect that devours our trees. The eggs look like a white dust. When the bugs first hatch out they are scarcely perceptible to the naked eye. The males walk off. The females remain and go to work. How these insects are transferred from tree to tree, and their entire manner of existence was set forth. A strong suds of whale oil and free potash was recommended as a cure for coccus.

In the evening Professor N. gave a lecture on The Spiritual side of the Darwinian theory. But as that theory only deals with the seen, and proves that, instead of a "fall," man with the rest of the universe has done nothing but rise from lower to higher, through all the ages, the spiritual side, which for some unacountable reason means the orthodox side, could not be made to appear.

On Friday morning Mr. Lesser, the Jewish Rabbi, gave a discourse on The Origin of Language. He showed how, in his very lowest estate, man must have used articulate sounds to express fear, pain, pleasure, etc. The lower animals have undoubtedly this means of communication. When the sparrow's nest is taken possession of by an intruder, the rightful occupant goes off and communicates with his fellow-sparrows, who then come in crowds and eject the stranger. The barking of a dog expresses anger, joy, and displeasure. He is a social being, and thus communicates with his fellows. Isolated, he forgets the art. It is small trouble to explain the growth of language after the first start, which is lost in obscurity. The first sounds must have corresponded to their meaning. Hebrew, Latin, and German had advanced, English retrograded. The gentleman briefly explained the growth of language in historic times, and showed the small number of

words which formed the vocabulary of illiterate minds—a few hundred were quite sufficient. But thousands were required by the thinker, the man of experience and observation. Shakespeare used seventeen thousand.

It is feared that my record will exceed your limits, yet I have left unchronicled the remarks of many talented persons. G. B. K.

MARIPOSA COUNTY.

The Institute of this county met at Mariposa Oct. 16th, and continued in session three days. Superintendent Richard Kane presided and opened the proceedings with a short and well chosen speech. Mr. W. L. Smith was elected Vice-President and W. H. Larew, Secretary.

Professor E. Knowlton, of the San Francisco Boys' High School, gave instruction in methods of teaching, and lectured and gave elocutionary readings during the evening sessions. Addresses were delivered on Fractions, by W. H. Larew; Orthography, by William L. Smith; Arithmetic, by Mrs. E. R. Allen; Essay: "The Teacher," by R. S. Taylor; Arithmetic, by W. D. Egenhoff.

Among the resolutions passed was the following:

Resolved, That this Institute endorses "THE PACIFIC SCHOOL AND HOME JOURNAL," and that we recommend it to teachers and those interested in education.

MODOC COUNTY.

Modoc County is up in the Lava Beds of northeastern California. It is the most inaccessible point in our State. Yet we believe the most favored regions on the coast can make no finer showing, educationally, than this far-away land.

The schools are not merely "alive," they are active and progressive. The Institute convened Oct. 2d, was well attended, and great interest was manifested in all the proceedings. Supt. E. P. Grubbs presided. Miss Laura B. Norris was elected Vice-President, and William Pascoe, Secretary.

Ex-Supt. Grove K. Godfrey delivered an address of welcome, and lectured on Industrial Education and School Law. Addresses were made by A. Eastin, on Reading; Miss Birdsall, on Geography; William Pascoe, on Industrial Drawing; G. W. Pleasants, on Writing; C. A. Pease, on Arithmetic; Miss Norris, on Theory and Practice of Teaching; Mr. Z. T. Conley, on Word Analysis; J. W. Heath, on Natural History; H. G. Hill on Physiology; A. B. Estes, on United States History; and Composition by J. R. Hammond.

The following interesting facts were stated by supt. Grubbs, in his annual address:

"I take pleasure in reporting to you that the schools in this county are in a healthy condition. All, except one, report at least a six months' school. Three new districts have been organized this last year. Nineteen out of twenty-three schools are being taught by good and competent teachers, and the others will soon be in session. It has been my desire to raise the grades of all the schools in the county, and I confidently believe, that soon we will be able to furnish every district with a first-class teacher. Of the number now teaching, thirteen hold first-grade certificates. Two of these are State Diplomas, two first-grade State, and four are Normal School diplomas."

Among the resolutions passed was the following appreciative mention of the JOURNAL:

Resolved, That every teacher should consider the importance of taking and reading some educational publication, and we would recommend the "PACIFIC SCHOOL AND HOME JOURNAL," as a publication thoroughly imbued with the spirit of educational advancement.

SAN BENITO COUNTY.

HOLLISTER, Cal., Oct. 2nd, 1878.

The San Benito County Teachers' Institute met in the public school-house, and was called to order at 10 o'clock A. M. After prayer by the Rev. J. L. Drum and singing by the Institute, the following officers were elected: Vice-President, F. H. Slaven; Secretary, J. N. Thompson; Assistant Secretary, Miss E. L. Angiers; Chaplain, Rev. J. L. Drum.

Prof. Allen conducted the Institute exercises. "School Government" was introduced by Mr. Housh, and discussed by Messrs. Black, Davis, Martin, and Mrs. McGinity. Mrs. Booth illustrated, by a class exercise, her method of teaching Notation and Numeration. Mr. Black in the same way illustrated his method of teaching Spelling. The question of attendance and tardiness was thoroughly discussed by Messrs. Thompson, Black, Slaven, Hickman, and others. Mr. Housh spoke on the subject of Fractions, and Mr. Root on Language Lessons.

Among the resolutions passed were the following:

Resolved, That in the opinion of this Institute it would forward the cause of education if the trustees of each school district were required to appoint a delegate to attend the yearly County Institute of his own county, and thereafter report his impressions to said trustees.

Resolved, That in the opinion of this Institute

the SCHOOL AND HOME JOURNAL, published in San Francisco, is well worthy of the support of all friends of education; and it is recommended that the teachers of the county who have not already done so become subscribers thereto.

[We consider the first of these resolutions eminently sensible and practical, and believe with the Institute that no one thing would more advance educational progress. For the second resolution, we return our hearty thanks.—EDITOR JOURNAL.]

EXAMINATION QUESTIONS.

[COMPETITIVE EXAMINATION OF APPLICANTS FOR APPOINTMENT TO THE MILITARY ACADEMY AT WEST POINT—SAN FRANCISCO, MAY, 1878.]

GEOGRAPHY.

Candidates will fill up the Blank Spaces in each Question.

(200 *credits*.)

1. The area of North America is square miles; that of the United States is square miles; that of Europe is square miles; and that of Asia is square miles. (8 credits.) (*b*) The population of North America is , and that of the United States is (2 credits.) 2. (*a*) The latitude of the extreme southern point of the United States is about degrees, and the parallel of forms a part of the northern boundary. The southern boundary of Oregon is the parallel. The latitude of Washington City is ; that of San Francisco is ; and Boston is situated near the parallel. (6 credits.) The meridian of West Longitude from Greenwich divides the United States into two nearly equal portions. The Union extends from the meredian on the east to the on the west. The Territory of Alaska, however, extends westerly to the meridian. (4 credits.) 3. (*a*) The principal mountain system in the eastern part of the United States is the extending from in the south to in the north, with an average height of . In the western part of the country is the system, extending from in the south to in the north, and having an average height of . (8 credits.) (*b*) A prominent mountain of the first range is Mt. , and of the second is Mt. . (2 credits.) 4. Four of the most important railroad lines in the United States are: 1st. The , extending from to . 2d. The , extending from to . 3d. The , extending from to . 4th. The , extending from to . (12 credits.) 5. Four great plateaus of the world are: 1st. in . 2d. in . 3d. in . 4th. in . (8 credits.) 6th. The waters around Newfoundland are the and the . The Bay of lies north of Nova Scotia; the Bay of is west of Yucatan; and north of Central America is the Bay of . Four large lakes in British America, are: Lake Lake Lake , and Lake . Lake is the highest lake in South America. (10 credits.) 7. The areas of five of the States of the Union are as follows: 1st. square miles. 2d. square miles. 3d. square miles. 4th. square miles. 5th. square miles. (10 credits.) 8. The State of New York is bounded on the north by and ; on the east by and ; on the south by and ; and on the west by and . (10 credits.) 9. (*a*) The Sea is southwest of Arabia; the Sea lies south and east of Sweden; the Sea is north of South America; the Sea of lies south of Turkey in Europe. (4 credits.) (*b*) New York City is of Washington, New Orleans is of Chicago, Cincinnati is Olympia, and Philadelphia lies of Boston. (4 credits.) (*c*) The and the rivers form the Columbia. (2 credits.). 10. The River separates Texas and Louisiana. The River separates California from Arizona Territory. The River separates Nebraska from Iowa. The River separates Illinois and Indiana. The mountains are on the boundary between France and Spain. The mountains are in Italy. The mountains are in Turkey, and run east and west. The mountains separate Europe from Asia, and run north and south. (8 credits.) The river and the river form the Alabama. (2 credits.) 11. Ten chief cities of the United States, in the approximate order of their population are: 1st. 2d. 3d. 4th. 5th. 6th 7th. 8th. 9th. 10th. . (10 credits.) 12. Ten cities in Europe, in the order of their population are: 1st. 2d. 3d. 4th. 5th. 6th. 7th. 8th. 9th. 10th. . (10 credits.) 13. The River in South Africa empties into the Mozambique Channel. is the capital of Egypt. is the capital of Chili. is the capital of Peru. is the capital of Brazil. is the capital of Austria. is an island at the mouth of the Amazon. is a group of islands off the coast of South Carolina. Northwest of Washington Territory lies the large island of South of Florida lies the island of . (10

credits.) 14. Five staple exports of the United States are: 1st: 2d. 3d. 4th. 5th. Five important imports are: 1st. 2d. 3d. 4th. 5th. . 15. The mean diameter of the earth is about miles. The length of a degree of latitude is about miles. The length of a degree of longitude at the equator is about miles. California is miles in length and miles in width. The Pacific Ocean is and the Atlantic miles in width. New York is miles from San Francisco. A straight line from the northwestern point of Washington Territory to the southern part of Florida is in a direction, and measures miles. (10 credits.) 16. (*a*) The distance from the North Pole to the Tropic of Capricorn is degrees; from the Arctic Circle to the Equator it is degrees; from the Arctic to the Antarctic Circle it is degrees; from the Tropic of Cancer to the Tropic of Capricorn it is degrees. (4 credits.) (*b*) The latitude of Cape Horn is ; the longitude of Boston is ; the latitude of New Orleans is ; the longitude of Paris is ; the latitude of Cairo is ; the longitude of Portland, Or., is (6 credits.) 17. Two great rivers of California are the and the . Four tributaries of the Ohio are the , the , and the . Four important rivers of the Middle States are the , , , and the . (10 credits.) 18. Five territories of the United States adjoining States are: 1st. , adjoining the State of . 2d. , adjoining . 3d. , adjoining . 4th. , adjoining . 5th. , adjoining. (10 crs.) 19. The capital of Georgia is ; the capital of Louisiana is ; the capital of Texas is ; the capital of Nevada is ; the capital of Kentucky is . Teheran is the capital of ; Munich is the capital of ; Tokio is the capital of ; Olympia is the capital of ; Tucson is the capital of . (10 credits.) 20. Define zone, tropic, axis, sphere, longitude, equator, latitude, oasis, plateau, promontory.

BOOK NOTICES.

THE HAMILTON SPEAKER. By Oliver E. Branch, A. M. New York: Dick & Fitzgerald. San Francisco: A. Roman & Co.

One fault of our schools in California, at present, is that not enough attention is given to reading and declamation. This is particularly true of our city schools. Within our own observation, we know of no school where one boy or girl in fifty can render with expression and effect the poetry of Whittier, or Bryant, or Longfellow; or the prose of Clay, or Webster, or Seward, or Burke, or Curtis.

There are two causes of this very unsatisfactory condition of things: Too little attention is paid to reading, and the books on elocution, called "Speakers," are entirely unsuited to the purpose for which they are designed. These books are too bulky; the selections are too long; a great many of them are hackneyed, and therefore uninteresting; there is a great deal of "padding," *i. e.*, selections that have properly no place in a school book, and the price is nearly always too high.

In enumerating the defects of the ordinary school speaker, we describe precisely what this "Hamilton Speaker" is not. It is, without exception, the best and most practical book for the purposes designed that we have ever seen, and can be advantageously used in every grammar and high school in the land. Within 257 pages is included a fine selection of prose and poetry by American and foreign authors of the past generation and of our own day.

There is no large portion taken up with a treatise on elocution, which neither pupils or teachers ever read. Four or five pages of practical "Suggestions to Speakers" is all and enough. The selections are of every possible description and style; all short and none uninteresting.

Without being in the slightest degree sectional or partisan, this book, we are pleased to see, is decidedly patriotic and American in its general tone. We commend it very heartily to our teachers.

THE MODEL COPY BOOKS. In six numbers, with *sliding copies*. New York: D. Appleton & Co.

It was evidently a practical teacher who conceived the main idea of these copy books. This idea is the sliding copies. We are not competent to decide on the merits of the writing in the copies of the series. It appears good enough for all practical purposes. The analyses and grouping of the letters, and directions for teaching on the pages of the cover of each book, are sufficiently explicit to enable every average teacher to do his work well. But the sliding copies are simply invaluable.

By means of a slender, but strong thread, the copies are made to slide down the page, so that the learner has the copy always before his eyes instead of his own imperfect writing. Teachers know that the greatest difficulty in getting children to improve in writing, is the constant disposition to write the last lines on each page more imperfectly than the preceding ones. By the contrivance in this series, this is obviated, and a constant improvement may be made.

BEAUTIFUL HOMES; OR, HINTS IN HOUSE FURNISHING. By Henry T. Williams and Mrs. C. S. Jones. New York: H. T. Williams. San Francisco: A. L. Bancroft & Co.

This is a well illustrated and complete work on how to render home beautiful, with considerable means or with but little.

There is an interesting chapter on selecting and arranging house furniture; others on wall paper, carpets, blinds, curtains, and lambrequins; on the different rooms of the house, and how they should and can be tastefully and cheaply furnished.

The chief merit of the book is the thousand and one clear and precise directions for making articles of comfort and ornament for the home. With this book, any lady of taste can surround herself, at a moderate cost, with a home, a model of comfort and delight.

HAMMERSMITH: HIS HARVARD DAYS. By Mark Sibley Severance. Boston: Houghton, Osgood & Co. San Francisco: A. L. Bancroft & Co.

If Thomas Hughes had not written "Tom Brown at Oxford," this story of an American Tom Brown at our Oxford, would have possessed the freshness and novelty which it has not. It is perhaps doubly unfortunate for our author that the very grace and vigor of his pen, his liveliness of description, quick play of fancy, and brightness of repartee should make the resemblance between his book and that of Mr. Hughes so much the more striking.

It may be said in behalf of this book that the resemblance between it and "Tom Brown" is incidental and natural to the relationship existing between the nations, which furnish the characters of each work. If this is so, "Tom Brown" is enough, and there is no field for "Hammersmith." On the whole, we may say of the book that it is full of *promise*, and that we may reasonably expect both pleasure and instruction from the author's future efforts, should he see fit to make any.

THE SLATE DRAWING BOOK. Revised by Prof. McGregor, Platteville Normal School, Wisconsin. Chicago: A. H. Andrews & Co.

This is a little book, containing many excellent designs in drawing, and well calculated to assist teachers in giving instruction in that very useful study.

THE NORMAL ARITHMETICS. Parts I and II. By Prof. Brooks. Philadelphia: Sower, Potts & Co.

Several months ago we reviewed a very able and comprehensive work by Prof. Brooks, entitled The Philosophy of Arithmetic. We have had several occasions lately to consult this work, and we are ready to repeat very heartily that it is precisely the work needed in our school libraries, and on the reference table of the studious teacher, for frequent use.

In this country arithmetic will always continue to hold its place with reading as the study of paramount importance. Teachers should certainly be well posted in that branch. For teachers and advanced students the Philosophy of Arithmetic is indispensable; so in the hands of those thoroughly trained in arithmetic the Normal Arithmetics are excellent class-books. We would recommend that teachers get a set of this series, and use it to prepare the lessons for their classes. They will find this a great help, even with the excellent arithmetics in use in our State.

THE SCHOOL AND THE FAMILY. By John Kennedy, Instructor in Teachers' Institutes. New York: Harper & Bros. San Francisco: Payot, Upham & Co.

Some time ago a work by Dr. James Johonnot was noticed in these columns on the *Principles and Practice of Teaching*, a work which is, we believe, entitled to be designated as the finest treatise on the art of teaching thus far written in the English language. The first tendency would be to compare these books, but we find on examination that the general subject of education is viewed from totally different stand-points by the two observers; and the two treatises differ entirely in manner as well as in matter.

Prof. Kennedy's work is a small 8vo. of 200 pages. Some of the topics treated are School Discipline, Conditions of Order for the District; for the Parents; for the Children; for the Teacher. District Problems; Youth's Problems; Family Problems; Teachers' Problems, etc., etc.

Under these heads Prof. Kennedy makes many interesting and valuable suggestions. Questions that are constantly arising in every teacher's experience in his relations to children, and parents, and trustees, are here spoken of clearly and logically.

In regard to the general aims of the work, we will quote briefly from the Preface: "It aims to reach the thinker, and for his purpose would observe a closely philosophical method. It aims to reach the parents and the community; and, in consequence, it has at times a fulness of exemplification which would be unnecessary in a strictly philosophical or professional work. It aims to be an instrumentality in the work of practical reform; and for that reason it has in places an intensity of language that would otherwise be without meaning."

In conclusion, we can recommend this work to the favorable consideration and study of every earnest worker in the field of education.

OUTLINES FOR THE STUDY OF ENGLISH CLASSICS. By Albert F. Blaisdell. Boston: New England Publishing Company.

We have followed Prof. Blaisdell's articles on the English Classics, through the numbers of the *N. E. Journal of Education*, and it is with much pleasure that we see them collected and arranged in the excellent little work before us. Brevity and point are two meritorious qualities which this book possesses in an eminent degree. The first chapter consists of an Outline Course of Study in English Literature; the second, of Suggestions in Teaching English Literature; then come Models for Treating Poems; Studies on Authors, etc.

As a book of reference, and a general guide to teachers for instructing in this generally mistaught subject, we can recommend the work.

THE ELEMENTS OF NATURAL PHILOSOPHY. By Prof. Elroy M. Avery, Principal of the East High-School, Cleveland. New York: Sheldon & Co.

We believe that the *elements* of natural philosophy should be taught, and thoroughly taught,

in every city, and town, and village, and district school in our country. We believe the study to be one of primary importance, and in order to do efficient work therein, we believe good text-books to be essential. Such a book is the one before us. Comparisons are proverbially odious, but we know of no work on the same subject that for a certain grade of school will equal, much less surpass it. The grade to which we refer is our high-school classes, and the advanced grade in our grammar course.

We have not sufficient space for a full description of the contents of this work. It is exceedingly well illustrated; the experiments are direct and well adapted to illustrate the points intended to be demonstrated; the metric system is used throughout the work, as well as our ordinary tables; (this is especially valuable, inasmuch as it gives the learner a good working acquaintance with the system by the time he finishes his course in physics).

We notice another commendable feature of the work in the simplicity of many of the experiments and the cheapness of the apparatus, some of which a teacher who has tact and energy will have his pupils make, thus benefiting them doubly.

The book is well up to the times, being accurate and giving accounts of all the latest discoveries in its field of science.

The mechanical appearance of the work, the illustrations, etc., reflect credit on the publishers. We cordially invite all teachers, and those of physics especially, to examine the book. We are certain they will agree that it more than justifies our encomiums.

NOVEMBER MONTHLIES.

Horatio Seymour is to contribute to the November December number of the *North American Review* an article on "The Government of the United States,', and James Parton one on "Antipathy to the Negro." William R. Martin, ex-President of the Department of Public Parks of New York, will write on "The Financial Resources of New York"; and "The Congress of Berlin and its Consequences" will be the subject of a paper by 'An Old Diplomatist."

St. Nicholas.—This magazine has attained a world-wide reputation as being the best periodical ever published for those entertng the portals of manhood and womanhood, as well as for younger children. It is a reassuring thought to those who are disposed to be alarmed at the many dangerous tendencies of the times that American taste is still so undefiled, and young American thought and life so pure, as to appreciate and sustain this refined and classical magazine. This is a great consolation for present apprehension, and a cheering indication that the coming generation is advancing to a higher plane of thought and being, and not going down to a lower level of civilization.

Scribner's Magazine.—This superb magazine enters on its seventh year with this November number. Never before has it announced so brilliant a galaxy of able writers as for the coming year. In the November issue, Mrs. Frances Hodgson Burnett, author of "That Lass o' Lowrie's," commences a new story of great power and interest, entitled "Haworth's." We have not space enough to enumerate one-tenth the interesting and valuable articles that may be expected this year. Another valuable feature of the magazine is the able and instructive editorial homilies of Dr. J. G. Holland, ("Timothy Titcomb") who is entitled to be ranked as one of the two or three greatest living editors.

Harper's Monthly.—We thought the acme of periodical literature had been reached in the past history of this great modern magazine; but we find we were mistaken, for the publishers of *Harper's Monthly* are still making improvements. For the past two or three months the illustrations have been unsurpassed by anything we have ever seen in magazine literature for excellence and beauty of finish. Each illustration in this November number is a complete work of art, so delicate is the tracery of the engraver's lines, and so complete and beautful the *tout ensemble*. We never take up one of the Harper periodicals without a feeling of pride that theirs is an American house—distinctively and patriotically American, too, and one which is doing much to nationalize our heterogeneous population, while it refines and instructs them.

Popular Science Monthly. There is no scientific treatise with which we are acquainted, that will com pare in practical value, as a means of general culture, with a volume of the *Popular Science Monthly*. For teachers and students this periodical is specially valuable. The time is rapidly coming, when in this country more than in any other, a knowledge of science will be of paramount value. No monthly periodical can give a thorough knowledge of science, but of all the Magazines of our day, the *Popular Science Monthly* most nearly approaches to the complete and accurate scientific teacher.

Lippincott's Magazine has always occupied a secondary position on this Coast, because more unobtrusive and less advertised than some of our other monthly magazines. But it deserves a front rank in American magazine literature. The contents, though differing somewhat in style from *Scribner* or *Harper*, are always first-class and standard. We heartily commend this publication to teachers, as well as to general readers.

Appleton's Journal makes a specialty of short stories of the South and South-East. It is not as high priced, nor does it rank as high, as other magazines referred to in this issue of the JOURNAL. It is, however, an excellent publication; there is never anything sensational or trashy about it.

Publications Received.

The following books have been received and will be reviewed in an early number of the JOURNAL:

FROM A. ROMAN & CO.

THE FIFTH READER. Appleton's School Readers: D. Appleton & Co.

A FRIEND. By Henri Greville. Philadelphia: T. B. Peterson & Bros.

FROM BILLINGS, HARBOURNE & CO.

ANNOTATED POEMS OF STANDARD ENGLISH AUTHORS, comprising Gray's *Elegy*, Goldsmith's *Deserted Village*, Goldsmith's *Traveller*, Scott's *Lady of the Lake*. Philadelphia: J. B. Lippincott & Co.

PEDAGOGICS AS A SYSTEM. By Dr. Carl Rosenkrans. Translated by Anna C. Brackett. Reprinted from *Journal of Speculative Philosophy*. W. T. Harris, LL.D., Editor.

FROM D. APPLETON & CO.

WORDS, AND HOW TO PUT THEM TOGETHER. By Harlan M. Ballard.

FROM THE AUTHOR, MRS. DE WITT CLINTON JONES.

VALHALLA, The Myths of Norseland.

FROM CLARK & MAYNARD: New York.

A COMPLETE INTELLECTUAL ARITHMETIC. By James B. Thomson, LLD.

THE PACIFIC

SCHOOL AND HOME JOURNAL

SUPPLEMENT

VOL. II. SAN FRANCISCO, NOVEMBER 5, 1878. NO. 10.

INTRODUCTION.

It is with much pleasure that we present to the readers of the JOURNAL the following account of the proceedings of the State Teachers' Association, at their recent meeting in Sacramento. We think California teachers have much reason to be proud of the character of the addresses delivered at this meeting. They are, one and all, a little out of the common order of productions usual at such gatherings. There is none of the stereotyped cant about the superiority of the teacher's work, and the consequent inferiority of all others. There is none of the tame, humdrum, and out-of-place talk on how to teach reading or arithmetic or grammar. The time of the general Convention was taken up with those great questions of general interest which pertain to the ethics of the profession of teaching and the general development and progress of our educational system.

The plan of all addresses was of that broad character which makes them of more than sectional interest, and there are some among them whose definiteness of purpose, unity of plan, elegance of diction, and logic of argument entitle them to a prominent place in educational literature.

Fourth Annual Meeting of the State Association of Teachers.

The 23d of September was warm and delightful in Sacramento when the State Association convened for their annual meeting. The attendance was small; but the different sections of the State were represented by their superintendents and representative teachers.

Owing to the fact that the Senate and Assembly chambers were being prepared for the meeting of the Constitutional Convention, the Association held its meetings in the High-School building.

At 3 P. M., on Tuesday, Sept. 23d, President A. L. Mann called the Association to order.

The Secretary, Albert Lyser, requested the appointment of two assistants. Superintendent J. C. Gilson, of Alameda County, and Miss L. E. Boalt, of Oakland, were elected Assistants.

Mr. Mann suggested the nomination and appointment of committees—one to confer with the Committee on Education of the Constitutional Convention, also a Committee on Introduction and one on Resolutions.

Superintendent Campbell, of Oakland, moved that the following Committees be appointed by the Chair, to be announced by him at the evening session: A Committee of Seven on Educational Clauses to the new State Constitution; a Committee of Five on Resolutions. The motion was carried.

Supt. Blackmer, of San Diego, moved that a Reception Committee of Three be appointed to meet lecturers. Carried.

The Chair appointed Mrs. Jeanne C. Carr, Supt. F. L. Landes, and A. H. McDonald, of Sacramento.

Prof. Senger, of San Francisco, moved that a Committee of Five be appointed by the Chair to nominate officers for the ensuing year. Carried.

Supt. Campbell moved that this Committee designate the place for the next annual meeting.

Mr. Lyser moved as a substitute that a Committee of Five be appointed to prepare a plan of permanent organization, and draw up a Constitution for the Association.

The Chairman suggested that the Association elect this Committee, which was acted on by the election of the following, in the order named: Mr. Lyser; Supt. Davis, of Sonoma; Supt. Campbell, of Oakland; Supt. Gilson, of Alameda; and Supt. Robinson, of Nevada.

The Association then adjourned until 8 P. M.

EVENING SESSION.

At the hour appointed President Mann called the Convention to order and introduced the speaker of the evening, Hon. Wm. Irwin, Governor of California, who delivered the following opening address:

TEACHERS OF THE STATE—LADIES AND GENTLEMEN: It was not without reluctance that I consented to address you on this occasion. Not, however, because I did not feel an interest in the cause in which you are engaged. The reluctance arose, rather, from a consciousness of inability to prepare an address suitable to the occasion. This reluctance, however, was finally overcome by the persistence of Mr. Mann, who, charged with the duty of procuring some one to deliver the opening address to the Convention, refused to take "no" for an answer.

On further reflection it occurred to me also, that, though I am not engaged in teaching, and consequently cannot reasonably be expected to be as well informed, touching the condition, character, and wants of the public schools as you, whom I address, are, it might not be wholly inappropriate for me to address you.

The educational department has become one of the most important branches of the State Government. I ought, perhaps, to say rather, that it has become the most important.

It has two aspects, and from a consideration of either, its overshadowing importance will appear.

First. The cost of the public schools.

The framers of our State Constitution appreciated the importance of public education; and to promote and secure such education they incorporated a clause in the Constitution imposing it as a duty, on the Legislature, "to provide for a system of common schools by which a school shall be kept up and supported in each district at least three months in every year." By another clause it is made the duty of the Legislature "to encourage by all suitable means the promotion of intellectual, scientific, moral, and agricultural improvement."

Thus is our common school system imbedded in the very foundation, and mortised into the frame-work of our State Government.

It is recognized as the correct rule in the construction of the Constitution of a State, to hold that the Legislature may legislate on any subject, or pass any Legislative act whatever, unless prohibited by the Constitution of the State, or the Constitution of the United States. In other words, it is held that a State Constitution does not contain a grant of powers to the Legislature—that it is not necessary for the Constitution to say "that the Legislature may do this," and "the Legislature may do

that," to vest the Legislature with power to do those things. It has the right, by virtue of being the repository of the Legislative power of the State, to perform all legislative acts whatever, except where restrained, as above stated, by Constitutional restrictions.

The Legislature, therefore, would have possessed ample power for the establishment and maintenance of common schools, if the Constitution had not contained a single word on the subject. The framers of the Constitution, however, were not satisfied to leave the Legislature simply with power to establish and maintain a system of common schools. They deem the matter to be one of too much importance to be committed to the discretion of the Legislature. They did not deem it wise to leave it to the Legislature to say whether there should be a system of common schools or not. They provided that the Legislature *must* establish and maintain such system of schools. And as the framers of the Constitution were not willing to leave the question. as to whether there should be common schools, to the wisdom of the Legislature, neither were they willing to trust the Legislature to say what disposition should be made of the proceeds of such lands as might be granted by the United States to the State for the support of common schools. They provided specifically that the moneys which should be received from the sale of such lands, and from certain other specified sources, "should be and remain a perpetual fund," while "the interest of such fund together with the rent of all unsold lands, and such other means as the Legislature might provide, should be inviolably appropriated to the support of common schools throughout the State."

I have referred to these Constitutional provisions to show the estimate which the framers of the Constitution placed on the importance to the State of a system of common schools, and the care they took to secure the establishment of such system, and to guard the funds for its support, which might come under the control of the Legislature; they leave absolutely nothing to the uncertainty of Legislative discretion which could be made certain by Constitutional provision.

Having thus digressed to show the relation of our common school system to the very frame-work of our State Government, I return to the subject of the cost of the system, as now maintained. And I do not suppose that I need apologize for inviting the attention of a convention of teachers to this aspect of the common school question.

The question of its cost—of its cost in dollars and cents—may, in the estimation of some persons, be a low and grovelling view to take of so necessary and valuable an institution as that of the common schools. If, however, there be such, I am satisfied they have not well considered how vital is the question of cost—of cost in the low, vulgar aspect of dollars and cents—in connection with every institution of civilized society. No matter how useful or valuable an institution may be, how necessary to the welfare of individuals, of the community or of the State, there is a limit to the cost at which it may be maintained. And this results necessarily from the very conditions of human society.

In the matter of earnings and expenditures—of production and consumption—the same law applies to communities and States as to individuals. It would be a work of supererogation to frame arguments to prove, or to invoke examples to illustrate, that an individual's expenditures must, in the long run, be limited by his earnings, his consumption, by his production. And as the capacity of an individual to earn, or to produce has limits, beyond which it cannot go, it is always in order for him, when an expenditure is

proposed, to inquire if he can afford it. That is, if what he earns or can earn will permit the expenditure; if what he produces, or can produce, will allow the consumption.

A community or State is limited in its expenditures by precisely the same law. If its aggregate expenditures exceed its aggregate earnings, if it consume more than it produces, it must suffer a financial collapse; in other words, it must fall into debt and drift into bankruptcy.

And in the long run, it will be found that the same law will be applied to communities and States, in the matter of contracting debts, that is applied to individuals. Their power to contract debt will be limited by their power, actual or supposed, to pay. And their power to pay must depend on and be measured by their power to earn—their power to produce.

Hence communities and States are limited in the amount of their expenditures by conditions as rigid and inexorable as those which limit individuals. Hence, also, with communities and States, as with individuals, a prime consideration, whenever a project is proposed, must be, what will it cost? The question of the cost is as vital as the character of the enterprise—perhaps even more vital. It matters little how beneficent an institution may be, how elevating and refining its influence on the public character, how well it may be adapted to repress and discourage vice and to promote virtue and public spirit, if the cost of its maintenance be beyond our resources, we must abandon it, however much we may regret the hard necessity which compels us to such a course. Communities cannot, any more than individuals, indulge in luxuries, comforts, or even necessaries, in excess of their capacity to pay.

I trust you have not begun to infer, from the tenor and scope of the remarks I have made, that I think our common schools are costing us too much—that they are costing more than we can afford to pay. I have not drawn this conclusion myself, nor do I wish you to draw it from anything I have said, or may yet say, on this occasion. My purpose has been, and will be, to emphasize the fact—the vastly important and essentially vital fact, as I regard it—that cost is an important factor, in fact, one of the most important factors, in connection with every problem and institution of civilized society. It is important in this connection that it be understood—that the teachers and the patrons of the public schools understand—that there is a limit beyond which we cannot go in our expenditures for an object, even so necessary and useful as the public schools. And we, perhaps, are now approaching that limit of expenditure, if we have not already reached it.

You will please understand me: I do not express the opinion that, reviewed from an educational stand-point, the common schools are now receiving all the support financially which it is desirable they should have; I will say, however, that, viewed from the economical stand-point, they are receiving about, if not quite, all the financial support the community is able to give.

You will excuse me if I now present some statistics which express and illustrate the cost, in dollars and cents, of our common schools, I have already adverted to the provision in our State Constitution which requires that all moneys received from lands, granted by the General Government to the State for school purposes, shall constitute a perpetual fund, while the interest, accruing from such fund, shall be expended annually in the support of the schools.

This fund, as you are aware, has been invested in State and county bonds. The amount of bonds in the fund is nearly $2,000,000; or, to be exact, it is $1,971,-

800. The annual interest on these bonds is $127,370.

The State, in disposing of her school lands, has given to the purchasers the option of paying twenty per centum of the value of the land at the time of purchase, and of paying interest on the remaining eighty per centum, at the rate of ten per centum per annum, till he shall become able to pay up such remaining eighty per centum.

The interest paid during the past year by purchasers, on the balances due the State, amounted to $51,414. This, added to the interest received from the bonds in the perpetual school fund, gives a sum of $178,784. This, at this time, is the annual yield of the grants of land by Congress to the State for the support of common schools. Of course, a great deal of land granted to the State is yet unsold; a great deal embraced in 16th and 36th sections, and situated in deserts, or in the deep gorges, and on the inaccessible summits of mountains will always remain unsold. Still there ought to be, and I doubt not is, a very large quantity of school land yet unsold which will ultimately be purchased for agricultural purposes. I hazard nothing in expressing the opinion that the annual receipts from the land grants to the State for the support of common schools will, in the future, be greatly in excess of what they are at present. Bnt conceding this, it must always remain a cause of profound regret, not merely to the friends of common school education, but to all tax-payers in the State, that a wiser forecast did not prevail at the adoption of the plan for the disposal of our school lands.

The Federal Government, in disposing of the public lands, not granted to the States or corporations for specified purposes, has adopted a policy which looks primarily to the early and rapid settlement of the country rather than to replenishing the public treasury from the sale of lands. This policy has no doubt proved a wise one. The early settlement of the public domain by an intelligent, enterprising, and thrifty population, in farms of moderate size, which has been the result of the policy, has been the source of a general wealth and prosperity to the whole country, which have made good to the public treasury many times over all losses which it may have sustained from the alienation of the public lands to settlers at mere nominal prices. In brief, the policy of the Federal Government—the object arrived at in disposing of the public lands to settlers—has been population, the settlement of the country, not revenue; that is, not revenue directly from the sale of the lands.

Now, on the other hand, the policy of the Federal Government, in granting to the States the 16th and 36th sections and other lands for school purposes, has been jnst the reverse of what it has been in disposing of the other public lands to actual settlers at mere nominal prices. As I have already stated, the object in disposing of lands to actual settlers is to secure population, to encourage and promote the settlement of the country. The object in making these grants to the States is that the States may derive a fund from their sale which may be used in the support of schools. Thus the policy which governed in making these grants had for its primary object revenue; the settlement of the country being only secondary and incidental. The lands have been granted to the States for this specific object, to-wit: that they may derive a revenue from the sale or other disposition of them; not that they may, by offering these lands as a gift or at mere nominal prices, induce immigration within their borders.

The granting of lands to the States by the United States for the support of schools, forms one branch of what we may regard

as a comprehensive system, adopted by the latter for the disposal of her public lands.

The practice of donating public lands to private corporations, which has prevailed to so alarming an extent during the last twenty or thirty years, is a foul excrescence on the United States land system, and ought not to be regarded nor treated as an essential part of it. It originated in an unhealthy condition of the body politic, and ought to be cut from the land system of the country as a gnawing cancer is cut from the human body. With its elimination from the system, the United States land policy will consist of two distinct, plainly marked branches, neither complete in itself, but each supplementing the other. And I presume we may be justified in regarding the practice of granting land subsidies to private individuals or corporations as a thing of the past; for I cannot suppose that a practice so vicious in principle and pernicious in its effects will be longer continued, and that in the face of an almost universally hostile public sentiment.

One branch then of the dual system for the disposal of the public lands of the United States, provides that all of such lands, except the sixteenth and thirty-sixth sections of each township, shall be disposed of to actual settlers in small tracts, either as gifts or at mere nominal prices. This branch of the system looks primarily to the settlement of the country. The other branch of the system sets apart the other two sections of each township for the support of common schools. This branch looks primarily to the raising of revenue from the disposal of public lands.

The original idea seems to have been that whatever should be received from the sale or other disposition of the sixteenth and thirty-sixth sections of a township should be devoted to the support of schools in such township. Thus it was intended doubtless by those who originated the policy of setting apart two sections in each township for the support of common schools, that the two school sections, as they are familiarly called, which were to be sold or otherwise disposed of, with the sole view of obtaining the largest possible revenue from them, should, equally with the other thirty-four sections which were to be given to actual settlers at a mere nominal price, contribute to the inducements to settle in the township. Viewed in its entirety then, the United States system for the disposal of the public lands provides substantially for giving away to actual settlers thirty-four sections out of the thirty-six in each township, and sets apart the other two sections as a source of revenue for the support of the common schools of the township.

But in the execution of this latter branch of her policy, the federal government has invoked the agency of the States, and has made them her trustee to execute her will. She has charged the States with the duty of disposing of the sixteenth and thirty-sixth sections, and applying the proceeds to the support of the schools. And no State, without the most flagrant disregard of the trust imposed on her, can make any disposition of her school lands not in strict harmony with the purpose and policy of the federal government, in devoting such lands primarily to the purpose of raising revenue. As for example, if a State, for the purpose of encouraging immigration, should offer her school lands as a gift or at mere nominal prices to such persons as would settle on and cultivate them, there can be no doubt that she would be guilty of a gross violation of her duty in the execution of the trust imposed on her by the general government.

I certainly do not desire to convict my own State of this offense; no more do I desire to charge that those who were responsible for the adoption of the policy which has been pursued with reference to

our school lands, were influenced by corrupt or otherwise improper motives. I cannot, however, regard it otherwise than as extremely unfortunate that a wiser statesmanship did not preside at the inception of our State land system, and that a policy with reference to our school lands was not adopted more in accord with the spirit and object of the policy of the federal government which had placed them under our control. We have not the data to estimate accurately, perhaps not to estimate even approximately, how much might have been realized out of our school lands for our permanent school fund under a wise and judicious system, honestly and faithfully administered. It, however, could hardly be deemed an extravagant assertion, if we were to assert that the school lands already sold might have been made to yield, without inflicting any injustice on the purchasers or injury to the State, which they have not suffered under the existing system, twice, if not three or even four times as great a revenue as has been derived from them. But with a perpetual school fund, twice, or three, or four times as great as the existing one, and with a correspondingly enhanced yearly interest therefrom, on a how much broader and securer foundation would our common school system rest? For we must not forget that people are always restless and impatient under the burden of heavy taxation, and that all institutions which depend for their support upon direct taxation, except where their necessity is so clearly manifest as to exclude all differences of opinion, are open to attack, on the ground that their cost is out of proportion to the benefits they confer, and are consequently liable, if not to be overthrown, at least to be greatly impaired in their usefulness by being deprived of the means necessary to their efficiency. It is hardly necessary to remark that no matter how much the revenue arising from the permanent school fund may lack of being sufficient to maintain an efficient system of public schools, the deficiency must be made up by direct taxation.

And it is true, unfortunately, as a matter of fact, that the revenue derived from the fund created by the sale of the school lands goes but a very short way toward supporting our common schools. According to the last Biennial Report of the Superintendent of Public Instruction, the total cost of the schools—including sites for school-houses, new buildings, and school furniture—for the year ending June 30th, 1877, was $2,749,729; and for the year ending June 30th, 1876, was $2,858,600.

Of this vast sum, all except about $350,000 was raised by taxation; that is, the amount raised by taxation in the school year 1877, in addition to the sums derived from other sources, was nearly $2,400,000. Of this aggregate, $1,260,000 was raised by State taxation; the remainder by county, city, and district taxation.

We may be able to form some conception of the vastness of the sums necessary to be raised by taxation for the support of the common schools by comparing them with the amount required for the General Fund of the State Government.

The State Board of Equalization, a few days since, levied, in pursuance of law, for the General Fund for the current fiscal year, a tax sufficient to produce $1,320,000. This, you will observe, is only $60,000 more than was raised last year by State taxation alone for the support of common schools; is $1,079,000 less than was raised by State, county, city, and district taxation; and is $1,329,000 less than the whole amount expended in the support of the common schools: that is to say, the amount required for the General Fund of the State Government this year is less than half the amount expended on the public schools of the State last year.

Out of the General Fund is defrayed all the expenses of the executive, the legislative, and judicial branches of the Government. In the executive department these expenses embrace the salaries of all State officers and of their deputies and clerks, and the incidental expenses of their offices; the cost of maintaining the insane asylums and the State Prison; the aid granted to orphan asylums and other institutions of an eleemosynary character; the support of the State printing office; the cost of erecting and keeping in repair the public buildings, and fitting up and keeping in order the Capital grounds; the support of the State Normal School; the cost of the Bureau charged with the examination of the engineering problems connected with irrigation, reclamation, and the debris question; and the expenditures for an infinitude of other objects, the enumeration of which would over-tax your patience. In the Legislative department these expenses embrace the mileage and per diem of members of the Legislature; the pay of the officers, clerks, and other attaches of the Senate and Assembly whose name is legion; and other multitudinous expenditures incident to a session of the Legislature, which, though not susceptible of being catalogued in advance, are, nevertheless, unavoidable. This year, it is true, the expenses of a Legislative session will not be incurred, but in their stead, we will have those of the Constitutional Convention, which will probably be quite as great.

In the judicial department these expenses embrace the salaries of the judges of the Supreme Court, the compensations of the officers and attaches of the Court, and all the other expenditures incident to holding terms of the Court, and the salaries of the district judges of the State.

These comparisons serve to illustrate and bring vividly before our mental vision the vastness of our expenditures for public school education. Our annual contributions from all sources for the support of our common school system are more than double the cost of maintaining the whole State Government, beside the executive, legislative, and judicial branches. This fact demonstrates sufficiently the importance of the system in the aspect of its cost.

It is pertinent now to inquire: Second, what ought to be the character of the education which our common schools shall afford? Merely to state the question indicates to some extent, at least, its importance.

I do not deem it necessary or proper to enter on any defence of the position that a system of common schools ought to be supported by the State. As I have already shown, the doctrine that it is the duty of the State, through the proper department of the Government, to provide for the maintenance of common schools, was recognized by the framers of our State Constitution, and incorporated into the frame-work of the Government. It will be time enough to defend this action, and show its wisdom and necessity, when it shall be seriously proposed by a body of citizens, respectable on account of their intelligence and virtue, and formidable on account of their numbers, to overthrow the system of schools which has sprung up in harmony with, if not in consequence of constitutional provisions.

While I know there is not absolute unanimity on the point that a system of public schools, at which all the children in the State shall have the right to be taught, ought to be maintained at the public expense, I have no question that an overwhelming preponderance of public opinion is in favor of it. I do not apprehend that there is any serious difference of opinion among the citizens of the State, either as to the right or the duty of the State to maintain such a system of schools.

But while there is, as I believe, a substantial agreement among citizens as to the right and duty of the State in the premises, there may be, and probably is, a very considerable divergence of opinion as to what the precise character of the education which shall be imparted in the public schools should be. And the most cursory glance at this question ought to suffice to show that it is one of very great importance; and one, also, on which sincere, and earnest, and intelligent friends of popular education may very well differ. When we come to ask, what ought to be taught in the public schools—that is, in the schools supported out of the public revenues—we find that the question ramifies in various directions. And it is natural, at least not contrary to what might be reasonably expected, that the answers returned to it should be marked by the peculiar idiosyncracies, mental, moral, or political, of those attempting its solution. But while it will be difficult, and perhaps impossible, to return an answer to the question which will be universally or even generally accepted as ideally correct, we ought to be able to find one which will be generally recognized as embodying a solution of it that will answer all practical purposes.

To determine just what studies the common school course should embrace is one of the difficult questions which practical educators have now to deal with.

I suppose there is a general if not a universal assent to the proposition that schools supported by public funds and supervised by officers of the State, must be purely secular in their character. I do not deem it necessary to offer any arguments to demonstrate that if we have a system of schools, in behalf of which the taxing power of the Government is exercised, which are supported from the public treasury, that it would not be in harmony with either the federal or State Constitution, or with what may be termed the common law of the land, to give to the system any special religious character.

But to determine negatively that religious creeds, or the doctrines of the sects ought not and shall not be taught in the schools, is one thing; and to determine affirmatively what ought to be and what shall be taught in them, is quite another, and, I think, a far more difficult thing.

Of course, there can be no question that reading, writing, and arithmetic must be taught in the common school, for these branches lie at the very foundation of all education. But scarcely do we get beyond them, before differences of opinion begin to arise as to what the common school course ought to embrace. There are many who stoutly maintain that it is not only useless, but absolutely hurtful to educate youth who must support themselves through life by manual labor, beyond a competent knowledge of the branches named. They allege, and no doubt with some truth, or at least appearance of truth, that the education of the intellect indisposes persons to engage in manual labor, particularly in manual labor of the rougher and more laborious kind. Hence, they infer that to give those who must, from the force of circumstances which they cannot control, live by manual labor, an education beyond what will be required by the exigencies of their limited business transactions, or by their social condition, is simply to endow them with a power which they cannot make useful, but which will add to their discontent at their own lowly condition. They add, and perhaps truly, too, that in this category a majority of those who are educated in the common schools must fall. The inference is not far to draw, to wit: that the common school course ought to be arranged with reference to the future wants and future happiness of this class of pupils.

It may be readily admitted: First, that

to educate a person indisposes him to engage in manual labor, especially in manual labor of the rougher and more laborious kind; second, that to give to a person who will be compelled to support himself by manual labor an education beyond what will be required by the exigencies of his condition, is to endow him with a power which can only make him discontented and unhappy; and third, that the majority of those who attend the common schools will have through life to support themselves by manual labor.

But admitting all these assumptions, and I incline to the opinion that there is a modicum of truth in them all, it does not by any means follow that the course of study in the common schools ought to be arranged with reference to the future educational necessities and the future happiness of that portion of the pupils who are destined through life to support themselves by manual labor.

It will not be maintained that the common schools or any of the educational institutions of civilized society have been established or are kept up merely to promote or secure the happiness of those who attend there; especially can this not be maintained if happiness be defined to be the mere absence of discontent, the absence of dissatisfaction with one's condition and circumstances. If happiness consist in the absence of these things, it is doubtful if there be any tendency in civilization to make men happy, if the civilized man be more happy than the savage, if the learned man be more happy than the ignorant.

Education looks rather to the development of the powers of the man than to making him contented and happy; its end is development, not happiness. And it is only through the education of the individual that the progress and development of society can be accomplished. And when society, by means of Government, which is only the agent of society, undertakes the education of its members, it must look rather to its own conservation and progress than to their individual happiness. This is the law by which society is governed in all its acts. Society, in its organized form, does what society as a whole requires, does what will promote its own interests, as contradistinguished from the interests of the parts or individuals which compose it.

The question then to be considered in determining what the course of studies in the common schools should be, is not what course will secure to this or that class of pupils the greatest degree of contentment and happiness in after life, but what will best conserve the interests of society and promote its progress and development. It requires no argument to demonstrate that these ends will be most surely and effectively subserved by giving to the whole body of our youth the most complete and thorough education that can be procured with the means at our command. True, in pursuing this method, much time and money will be wasted on worthless persons, who would be as well off, or even better off, if educated only in the merest rudiments of knowledge or left wholly without education. But this is the way in which nature herself works. Not one seed in ten which she drops into the bosom of the earth, and waters with the rains and dews of heaven, ever springs up, and grows to maturity, and bears ripe fruit. But before they are cast into the soil, it is impossible to tell what seeds will and what ones will not grow and bear fruit.

So before the experiment shall have been made, it will be impossible to say what child in the State is endowed with the germ, in embryo, of a Bacon, or a Newton, or a Watt; of a Luther, a Milton, or a Webster; and what one, alas, has only faculties which cannot be improved by education, or which can only be developed into aptitudes for mischief and crime.

The development of the human facul-

ties, and through such development the progress of society and the subjugation of the powers and forces of nature to human intelligence and the human will, are part and parcel of the programme of Divine Providence. And the course of studies in the common schools, as also in our higher educational institutions, should be arranged with special reference to these objects:

First, The development of the mind of the pupil. This embraces, of course, the unfolding of whatever germs of power nature may have given him. It means the calling into action, the sharpening and strengthening of every faculty and power of the mind. It means even more than this; it means that the unfolded, sharpened, strengthened, matured powers of the intellect shall be brought into subjection to the will of their possessor, and shall move in obedience to its volitions. This is the primary object of education; at least it should be. And any course of study which does not keep this object in the front, which does not, first of all, aim to call out, sharpen, strengthen, and mature the faculties of the pupil, and place them absolutely at his command, is essentially defective, if not radically vicious, and ought to receive no favor at the hands of the public.

Second, The acquisition, as far as practicable, of useful knowledge. It is hardly necessary to say that very little knowledge, useful or otherwise, can be acquired while passing through the common school course, or even through the course in our higher institutions. The time is too short for making large accumulations of knowledge. Still the germs or seminal principles, which will unfold into vast fields or even continents of knowledge, may be acquired in the schools. Now, the second object of an education is to imbed, to plant in the mind of the pupil these germs of knowledge, these seminal principles from which whole sciences may develop, as the majestic oak is developed from the acorn.

I have already said that the first object of an education is to discipline the mind; that is, to make of it an instrument capable of acquiring and using knowledge.

Now, it is axiomatic that there can be no development of the mental faculties except through the acquisition of knowledge. It is equally true that knowledge of any kind, or in relation to any subject, will develop or tend to develop the mind. It will not be pretended, however, that the study of every subject or branch of science is equally useful as a mental discipline.

Now, knowledge of certain kinds is or may become very useful, while knowledge of other kinds is wholly incapable of being turned to any practical account. It ought not, it would seem, to require any argument to show that if the studies yielding useful knowledge are equal in their capacity to discipline the faculties of the pupils to those which yield knowledge only of an impractical kind, that the former ought to have the preference over the latter in our schools. In other words, in so far as the object of the courses of study in our schools is to impart knowledge to the pupils, they should be arranged with special reference to imparting knowledge of a useful character.

According to Macaulay, Bacon's greatest service to mankind consisted in the fact that he diverted the speculations of philosophers, and the investigations of scientific men, from mere ideal to practical channels and ends. He taught the learned to appreciate truth, not alone because it was truth, but also because it could be made useful; because it could be made the vehicle of benefits and blessings to mankind. And Macaulay ascribes the wonderful progress made during the last three centuries in national wealth, and in the conveniences, the comforts, and luxuries of civilized society, more to the powerful influence of Bacon in impressing upon

the learned that science would not be degraded by becoming useful than to any other cause, or all other causes combined.

From now forward, the foremost nations of the world will be those who shall place themselves in the van of industrial progress. The greatest nations will be those who can produce most abundantly and cheaply the things which civilized men need and must have.

If we have an ambition to place ourselves in the front, if we would produce abundantly and cheaply, so that we may exchange advantageously with other nations and countries, we must give to our education a practical character; we must inspire in the children in the common schools, and in the youth in the higher institutions of learning, an ambition to extort from nature secrets which she has never yet given up; to study more thoroughly and comprehend more fully her laws; to subjugate more completely her forces and make them the docile servants of man, to administer to his necessities, his comforts, and luxuries.

Thus will we make our common schools and other institutions of learning not alone a blessing to those who attend them, not alone a blessing to our own country, but a boon to all civilized nations and people under the sun.

The address was frequently and warmly applauded. At its conclusion John Swett moved that the State Association tender a vote of thanks to the first Governor of California who has ever addressed a body of teachers, for his very able and valuable address, and request a copy for publication, which motion was unanimously carried.

The President then announced the following Committees: On Constitutional Convention—Supts. Campbell, Ruddock, Blackmer, Davis, State Supt. Carr, Hon. John Swett, and Prof. Martin Kellogg, of the State University. On Resolutions—Prof. Chas. H. Allen, Messrs. Crowhurst, of Contra Costa, Gates, of El Dorado, Garlick and Johns, of Oakland. On Nomination of Officers—Supt. Gilson, E. K. Hill of Marysville, A. H. McDonald, L. J. Chipman of Santa Clara, and Prof. H. Senger of San Francisco.

The Convention then adjourned until 10 A. M. Wednesday morning, for section work.

GRAMMAR SCHOOL SECTION.

This section, with A. H. McDonald, of Sacramento, as chairman, met at 10 o'clock A. M. Wm. Crowhurst of Contra Costa, and Miss Boalt of Alameda, were elected secretaries. Prof. J. P. Garlick of Oakland, opened a discussion on the subject of teaching Arithmetic, recommending the use of formulæ. The subject was discussed by Messrs. Johns, of Oakland; Senger, of San Francisco; Crowhurst, of Contra Costa; Oliver, of Gilroy; McDonald, of Sacramento; and others.

At 12:10 P. M. the section adjourned for the day.

SUPERINTENDENTS' DEPARTMENT.

The Superintendents' Department was called to order by the chairman, F. M. Campbell, of Oakland, at 10:30 A. M. J. C. Gilson, of Alameda, was elected secretary.

Ruddock, of Mendocino, asked concerning proposed line of work, and Mr. Mann, of San Francisco, suggested that each member give his views on a systematic course of visiting schools, and that there be a general expression of views on school supervision. It was then put in the form of a motion and carried.

Gilson being called upon, read a brief paper embodying his views of what constitutes fitness in the supervising officer, object of visiting schools, etc.

Davis, of Sonoma, spoke of the large number of schools in his county, of the difficulties in the way of making proper supervision, and of the lack of definiteness and objective results in the visits of county superintendents. He thought superintendents ought to look after the condition of school property, and found that much dissatisfaction existed in his county in reference to use of library fund. He advocated keeping in a book a record of condition of school.

Mann elucidated method pursued by deputy superintendent of San Francisco in visiting schools, and believed that a modification of this plan could be successfully used by county super-

intendents; that it was *essential* to make a record of *order* and *attention* observed; urged making a record under three heads, as, for instance, management, classification, and discipline; also, classification of quality of teaching, as excellent, good, fair, poor, and have such record on file in the office of the superintendent, subject to the inspection of trustees and others; thought superintendents frequently recommend unworthy teachers, in order to get rid of annoyance, and that only meritorious teachers should be recommended; that superintendents ought to consult record book when called upon to recommend, and recommend only according to standard there given; thought that there should be systematic form for visiting.

Chipman, of Santa Clara, favored superintendents spending half a day in each school, and that at first he should watch how the teacher performs his work; that the written testimonials shown by teachers are by no means conclusive evidence of fitness for teaching. He advocated peremptory refusal to recommend incompetent teachers; and thought that people do not take sufficient interest in the election of trustees, and that we have few really good teachers.

Augustine, of Marin, said he was not in favor of giving partial recommendations, and that whatever faults were found to exist should be kindly stated to the teacher.

Chipman related his experience, dealing with teachers' faults, and his encounters with the fair sex.

Ex-State superintendent Swett believed that one of the most important objects of the superintendent's visits should be to talk to the children, give them good advice, tell them how to study, how to use text books; thought that superintendents should recommend suitable works on education to be read by young teachers; advice should be given to young teachers, but that it was generally not best to press advice on old teachers. It is a good plan to get in the parents at the time of the superintendent's visit, so that they may be invited by the superintendent's talk to take more interest in education.

Augustine stated his experience in recommending works on education to teachers.

Campbell advocated examining libraries, and keeping a record of the report of the classes of books constituting them.

Robinson, of Stanislaus, compared superintendent to master mechanic; was in favor of superintendent taking charge of school half a day or so, and showing the teacher how to teach.

Ruddock endorsed Swett's views on school talks; did not endorse the idea of the superintendent's taking charge of classes and teaching; recommendations are too cheap; teachers are prone to let pupils take up the higher branches when they are deficient in the lower; superintendent should see trustees at time of visit.

Blackmer thought the superintendent's manner of visiting important. He favored visiting schools unannounced; after timidity had worn off, examine pupils, and at end of session address children. There is a great lack of knowledge on the part of trustees as to what constitutes a good school. He would make a general record of school. He believed that the board of trustees should be induced to attend teachers' institute, etc.

Mann favored trustees visiting other schools, so as to contrast them with others.

Mann moved a Committee of Five be appointed to report a system of recording visits of county superintendents; prevailed.

Campbell spoke of desirability of superintendents being careful not to injure or weaken the influence of the teachers in the schools visited.

On motion of Supt. Mann, a Committee of Five was appointed to prepare a form for recording school visits, and to register the efficiency of teachers, condition of schools, condition of libraries, and condition of school property. The following were appointed as a committee: Robinson, of Nevada; Pendegast, of Yolo; Ruddock, of Mendocino; Augustine, of Marin; Robinson, of Stanislaus.

The section then adjourned until Thursday, at 10 A. M.

AFTERNOON SESSION.

At 2 P. M., the Association met in general convention. President Mann in the chair.

According to programme, John Swett, Chairman of the Standing Committee on Industrial Education, appointed at the session of 1877, presented the following report:

Your Standing Committee on Industrial Education, appointed at the last Annual Convention in 1877, submit the following report:

With regard to technical industrial education in the University of California, we

express the hope that before long it may be practicable to carry into full effect the organic act of establishing that institution.

With respect to the subject having an indirect bearing on the proper relation of the public school system to the industrial occupations of society as now constituted, we submit the following :

1. That it is practicable, without interfering with the present school studies, to give them a disciplinary bent which shall aid our youth when they engage in the actual work of earning a living ; that while it may not be practicable to educate public school children in general, in technical industries, it is desirable to train them for industrial pursuits.

2. That we urge upon our school officers, and upon citizens, the necessity of establishing an evening school in every city, town and village having a population of over one thousand inhabitants.

Any school which enables working men and boys to better their intellectual condition is one kind of an industrial school. The evening schools of San Francisco form one of the best features of her noble school system.

In those schools, the four drawing classes and four commercial classes are strictly technical schools. To these might profitably be added instruction in wood-carving.

3. That in all schools, whether graded or ungraded, city or country, more attention should be given to thoroughness in reading, writing, and spelling the English language.

When the county and city examinations for teachers' certificates show conclusively that many high-school and college graduates are unable to read, write, or spell their mother tongue with any reasonable degree of fluency, neatness, or accuracy, this proposition is an axiom requiring no further proof. Over the doors of the primary schools should be posted "No Shams Here."

4. That in all schools below the grade of high-schools, teachers should direct their efforts in arithmetic to securing readiness and accuracy in the "four rules," the tables, and common and decimal fractions and interest, omitting the rest of the State text-book on arithmetic, if necessary, in order to secure time for a modicum of instruction in natural science.

5. That in all schools, teachers should endeavor to train their pupils by means of "language lessons" to express their thoughts correctly in speaking and to write English with sufficient accuracy and readiness to be able to write, spell, punctuate, and express in grammatical sentences a letter of business or friendship.

In order to do this, if necessary, sacrifice a part of the text-book on grammar.

6. That teachers of all schools, and of country schools in particular, shall give some instruction in the elements of physics, botany, zoology, physiology, and mineralogy ; or, in other words, should send out their scholars with a solid stock of common sense knowledge about common things.

7. That all teachers should instruct their pupils in the laws of health, adapting them to the age of the children. Good health is the capital of all boys and girls that have to earn their own living.

8. That teachers should give at least one hour a week to specific instruction in the principles of morality.

Truthfulness, honesty, and character form the foundations of society.

9. That we urge upon women engaged

in teaching, the desirability of instructing girls in the general principles of domestic economy, and upon men, the importance of impressing upon boys the necessity and nobility of labor, whether manual or mental.

In order to do this it is entirely unnecessary to introduce a cook-stove into the school-room, or transform the school-yard into a barn-yard.

10. That County Superintendents and School Trustees be requested to endeavor to secure the wisest possible expenditure of the school library funds.

The books for the small country libraries should be, not encyclopedias or other expensive books of reference, but books suited to the tastes and needs of school children. Half the money heretofore has been thrown away on trash.

Among other things, every country school ought to have two or three sets of "school readers" in addition to those owned by the scholars. The libraries should also be well stocked with science primers and entertaining story-books.

11. That under our system of local Boards of Education and District School Trustees, it is impossible to reform or improve our schools by means of centralized State agencies. Teachers and reformers must begin at home, instead of wasting their energies in striving after the visionary and impossible. A school system is an organic growth, and any modification must be slow.

12. That we urge upon the Board of Regents of the University of California the educational necessity of establishing a Professorship of the Science of Education and a special course of studies for those students who desire to become teachers in higher grade schools.

13. That a Normal class should be established in connection with each of the larger high-schools of the State, for the purpose of supplying the local demand for trained primary teachers. Training classes should be organized as schools of practice in the art of teaching.

Only trained teachers can bring our schools to meet the real need of existing social conditions. The vitality of any school system exists in the men and women who do the teaching.

As a measure of economy in these hard times, we earnestly urge school trustees to pay money only on condition of first-class work by professionally trained teachers. *Trustees have no right to squander the public moneys in the wasteful extravagance of employing educational tramps, even if they are willing to work at a Chinaman's wages.* The State Normal School is good as far as it goes, but we need the added agency of the State University and of high-schools in order to send out skilled teachers.

In order to have good schools, we must have good teachers; in order to have good teachers, we must have good Normal Schools for educating professionally trained instructors.

JOHN SWETT,
JAMES DENMAN,
Committee on Industrial Education.

On motion of Mr. Lyser, the report was received, and made the special order for discussion on Thursday afternoon. The Convention then listened to the annual address of the President for 1878, Hon. A. L. Mann, of San Francisco. Mr. Mann's subject was:

The American Idea of Free Public Education.

He spoke as follows:

FELLOW TEACHERS:—Another year has gone by and carried into the past its burden of toil. Again we stand together to take counsel of experience, and to make ready for another onslaught upon the hosts of darkness. For with us there is no rest

from battle, but the preparation for a fresh attack. Victory, though in sight, is by no means secure.

Ignorance, prejudice, bigotry, and love of money still oppose us. We cannot cease from strife till the last foe shall be silenced and every inch of the land shall be occupied by our forces. As long as wealth shall grumble at its just dues to patriotism, as long as sects and casts shall encroach upon our recruiting grounds, as long as there is a single straggler or deserter from our ranks, as long as any are escaping conscription that should be enrolled in the common school army, so long must the officers of that army spend their lives in unceasing toil and watchfulness.

These annual gatherings are of great value to us for comparison of ideas, and for mutual aid and sympathy; above all they keep us from mental and moral stagnation, from settling into a condition of self-satisfaction and swinish content. With teachers the effect of association is like that of learning as described by Lord Bacon:

"It disposeth the constitution of the mind not to be fixed or settled in the defects thereof, but still to be capable of reformation. For the unlearned man knoweth not what it is to descend into himself and call himself to account; nor the pleasure of that most pleasant life which consists in our daily feeling ourselves become better."

For my contribution to this interchange of professional thought and opinion, I ask your attention to a few words about the American idea of free public education:

1st. The American idea is not *national*, but rather *State* and *local*. There is no national uniform system under federal control, officered by the central government, and surmounted by a national university and a supreme normal school. Some, led away by the grandeur and theoretic excellence of such a system, have dreamed that this most beautiful flower of despotism would thrive and bloom on our own free soil; but our schools are "of the people, by the people, and for the people." The school district is the unit which, by successive groupings into townships, counties, and States, becomes at last the nation. Our country can ill afford to lose the training in the duties and responsibilities of citizenship given to individual voters in the building of school houses and the election of trustees. The system lacks uniformity, it may be true; there are crudities and inconsistencies, and sometimes injustice; but it is quickened throughout its whole fiber by the spirit of Anglo-Saxon independence. The schools are as good as the average of the people—I think better. Since they are near to the people, the work of their own hands, they are rooted to the soil, and are far more efficient in moulding national character than if they were the more systematical boon of some wise and kind despot. It is really a wonderful proof of our homogeneity as a people, that the school systems of the different States are so nearly alike and show so few variations from the original New England ideal. The citizen of Massachusetts may remove with his family to Indiana, and his children will immediately find their appropriate places in the public schools. The schools of San Francisco or Sacramento vie with those of Philadelphia or Detroit. Even the South, long indifferent or hostile, is now the welcome home of the Yankee public school. Georgia and Kentucky are not more distinguished for cotton and tobacco than for a progressive system of common schools, with all the well-worn appliances of normal schools, high schools, and teachers' institutes. Every patriot may feel his heart glow at this prospect, and patiently wait the steady development of the whole people and the schools as a part of the people, and be happy in the thought that in this country every man is his own Bismarck.

2nd. The American idea is non-sectarian, or it may be said that, while it is not *irreligious*, it is *non-religious*. This is the idea held by the vast majority of our people, for the good sense of the mass refuses to be turned by the voice of bigotry from the simple conclusion that only on this basis is general public education possible in this country. I ask for your indulgence while I make a quotation from a work on California, recently published in Paris, by M. Leon Donnat, a distinguished Frenchman, who spent some months last year in visiting our State. M. Donnat says of our schools: "The instruction is entirely secular; the inculcating of any religious doctrine is formally forbidden by law. We must not conclude from this that the Americans consider religion out of place in the education of youth. Their opinion is entirely contrary to this; but they are convinced that it is not a duty of the State to inculcate religion. According to their ideas, this function belongs essentially to the family and to the minister of religion, who have every opportunity to fulfill it." M. Donnat goes on to prove by statistics that most of the children of proper age to receive religious instruction do, in fact, receive it in Sunday schools, and says in conclusion: "In the opinion of Americans, children educated side by side without distinction of religion, know nothing of the animosities or even of the estrangements which too often are occasioned by difference of belief; on the contrary, they acquire that spirit of toleration which I have observed to exist to such an extent in California society. * * * Such are the public schools of California, open freely to all religions, to all nationalities, to every class; where the Jew encounters the Catholic, and the French or German boy the American or the Irish; where the son or daughter of the poor man is seated beside the children of the rich.

"The sentiment of equality and the spirit of tolerance are here developed naturally without any effort. If those scourges of society, antagonism and envy, are far from asserting their force in California, as in the States of Europe, is it not to be attributed in great part to her public schools?"

Our schools are not altogether "godless," as it is often charged by their more bigoted enemies, and as it was, in my opinion, improperly admitted by the Rev. Henry Ward Beecher, in a recent lecture.

The belief in a Supreme Being is, I am sure, spoken of everywhere with respect, and fearlessly avowed by most, if not all our teachers. Our books, thoroughly expurgated as they are of all sectarian matter, still abound in allusions to the wisdom and goodness of God, and inculcate the virtues of reverance and piety. Besides, every earnest teacher throughout our whole land is cultivating with set purpose, in the souls of his pupils, the "fruits of the spirit—love, joy, peace, gentleness, goodness, long suffering, self-control," which were declared by the same eminent divine, on another occasion, to be the "essential marrow of Christianity."

Did it ever strike you, that moral training in the public schools is a necessary automatic attachment to their machinery? For, suppose a teacher should determine that he would studiously avoid the subject of morals, and that he would give no moral training distinctively, but would devote himself exclusively to the securing of mental results, what must he do to be successful? First, he must prevent lying and cheating, in order that he may ascertain the truth about the intellectual progress of his pupils. Second, he must diligently inculcate habits of obedience, respect, industry, and fidelity, that his pupils may learn the most arithmetic and spelling in the shortest time, by the best methods, and to the best advantage. Lastly, to bring about that degree of order absolutely essential to success in mental acquisition, he

must carefully plant and water the virtues of self-sacrifice and regard for the rights of others. In addition to this, the teacher intent upon a well-disciplined school, since only such a school will show the best intellectual results, will find it to his interest to put to the rout profanity and vulgarity whenever they may appear on the school premises. Thus, from purely selfish motives, the teacher working only to increase his own reputation for suceess in mental drill, and thereby to put more money in his purse, will be forced to build up in his pupils a sound moral character and strengthen to a high degree all the practical virtues.

But such is the constitution of the human mind, and such the result of keeping it constantly bent in one direction, that no so entirely selfish person as I have imagined is found in our profession. The teacher's constant efforts to make good boys and good girls in order to make good scholars, react insensibly upon himself Acts constantly repeated grow into habits; habits harden into principles; the selfish motive disappears from consciousness, and so the *good teacher* becomes the *good man*. Let one thousand teachers be compared in respect to rectitude of conduct and loftiness of character with one thousand men or women in any other employment, and what teacher would fear the decision of an impartial judge? One thousand farmers are not more honest; one thousand clergymen are not more moral. Still, I think more thought should be given to this matter.

In addition to the moral training necessarily involved in the successful management of a school, I think it would be well for teachers to have this object definitely in view, to endeavor to make the most of every exhibition of good or bad traits by their pupils, and even to set apart the first half hour on every Monday morning for a story, a conversation, or a lecture, that shall have a decided moral tone. All this and more can be done without arousing religious prejudices or embittering sects. The spirit of the Bible is not in the letter thereof; its lessons of goodness can be imparted by the wise teacher, with the approval of the Jew, Protestant, Catholic, and infidel; for no man is offended with the soul or even the body of truth, only with the fashion of its outer garments.

Third, the American idea of common schools is that attendance should be voluntary as well as free. The arguments in favor of a compulsory education are very conclusive. Its advocates have all the logic and its opponents all the facts. The conundrum, if you tax A's property to pay for schooling B's child, so that A may not be taxed to keep B's child in jail, shall not B be compelled to send his child to school? has no answer; but social phenomena cannot be squared exactly by mathematics or brought into the straight line of theory. Compulsory education in this country meets the immovable wall of parental independence. It is Prussian, not American. I quote the following from the *Pennsylvania School Journal* for September, 1878: "But practically it will not work with us. Wherever it has been tried in this country it has been a failure, and we accept the logic of events. A compulsory law to be effective needs either a strong central government, with its agents on every hand to see constantly to its enforcement, as in certain countries of Europe, or a universal public sentiment in its favor, which is at present to be found nowhere save in countries where such a law has been long enforced. As neither of these conditions exist with us, we must fall back on moral suasion and individual effort, upon wise courses of study and wiser methods of training, upon attractive school rooms, and more than all, upon trained teachers, who shall be centers of missionary effort in their respective communities. As the years pass, the

hold of the public schools upon the popular mind grows and will grow stronger, until the force of public sentiment, educated more wisely in the new world than the old—such is the vision which faith has of the future—will compel universal education. And this desirable end thus reached will be better reached than is possible under any system of force or of legal enactments."

These views of Mr. Wickersham seem to me to represent the average of American feeling on this subject. Still, I think that in all cities and towns, compulsory laws should be made to affect the boy or girl found idling about the streets in school hours. The truant or idler should be taken to a truant school, and there put under mild and wholesome discipline. If a reform would be effected, the truant should be transferred to some other school; if the truant should prove incorrigible, he should then be committed to a reform school or house of correction. Evening schools should be organized in every large town, to secure the voluntary attendance of those children who are compelled to work in the day time. Half-day schools might well be tried to reach that class of boys who are learning the trade pursued by their parents, minding shop, selling papers, etc.

By the co-operation of benevolent and public spirited manufacturers, a scheme of apprentice labor might be developed, in which the manufacturers would employ two shifts of boys or girls, one for the morning, the other for the afternoon; the unemployed shift could attend some public school for half a day.

A public school could be easily adapted to this purpose and would need but slight modification. Truant schools, evening schools, and half-day schools are entirely practicable and in consonance with our general system. I recommend them to the attention of teachers and school officers that are anxious to have the light of education shine into the darkest corners of our land.

Fourth, our schools are not *industrial;* but upon this point there has been considerable discussion. Shall trades be taught in our schools? Are we educating our children for business and the professions, and breeding in them a dislike for manual labor? are the questions of the hour, and fill many pages of contemporary school literature. The general drift of opinion seems to be that it is both impracticable and uncongenial to our institutions to engraft instruction in handicraft upon our free public schools. The latest utterance of opinion that I have noticed in this regard, are the words of Samuel Eliot, the new Superintendent of the city of Boston: "Were industrial education tried in the way usually recommended, it would, I fear, not only fail to remove our difficulties, but add to them. Introduced into our existing schools, it would increase the pressure, already too great, or multiply the shortcomings, already too numerous, in the studies now taught, while it would find so slender opportunities for itself as to turn out, in all probability, the most imperfect branch of all. Admitting all the advantages of industrial education, we are not bound to admit that the State should provide. It is of that character which will flourish better on private than on public soil. It needs specialists to found it, and specialists to build it up, so that it may do its work effectively. If given by these, and to those who really feel the need of it, it will be saved from a great deal of waste —waste of energy and waste of money. There is no greater mistake in educating than in clamoring for the State to do what can be done better by individuals. If it must provide training for labor, it may soon be called to provide labor itself, and then we shall have a sad experience of full-blown communism, the something that affects the world." Let me add to these

remarks of Mr. Elliot, that the industrial education of the people by the Government is a characteristic of paternal despotism and not of free democracy. If the time shall ever come in this country when the struggle for existence shall be so severe that the son can find no place in the battle of life, but the one made for him by his father, when necessity shall so divide and segregate labor, that Nevada shall be a town of weavers, Grass Valley of dyers, and Los Angeles of button-makers, then it may not only be practicable, but necessary to the common weal, that the sole industry of each community shall have a place in the curriculum of its common schools.

That time will not come, if it comes at all, until the soil of California shall sustain 20,000,000 of people. Meanwhile, let us be grateful for those gifts of nature and those institutions of our ancestors, that have made us a peculiar people, distinguished above all others for the independence and versatility of our national character, and for the flexibility of our social bonds, that permit the humblest citizen to hope the best things in the future of his children.

Some pessimists among us are fearful of the result of the discontent with an humble lot, and the aspiration for honorable place, that are so characteristic of our people, and especially of the young. They are pained at the sight of the disappointed hope and wrecked ambition of merchants and "briefless barristers." But discontent, aspiration, and occasional failure is the law of human nature; more than this, it is the instinct of animal life.

Millions of ages ago there were two arboreal apes with hairy bodies, pointed ears, and rudimentary tails. The law of their being led them to be discontented and to aspire. They conquered and destroyed inferior tribes, and in all things endeavored to adapt themselves to and to become superior to their environment. Æons passed by, and one of these apes became a man, the other only a gorilla. Both were rewarded though not in an equal degree, for had neither aspired they would have degenerated, and finally would have miserably perished to make room for the "survival of the fittest." So the order of nature is cruel to individuals, that it may be kind to species. We should not allow our sympathy for the weaklings that perish to overcome our joy over the strong that survive, nor cease to exult that in our country the contest for every social and political prize is open to all.

The advocates for public industrial education having been pressed with the question, what trades shall be taught in the schools? have answered, no trades in particular, but those manual operations that are common to all trades, the practice of which will lead to a general dexterity that will be available in any trade that may be thereafter learned. Now I have discovered that we need but to make the proper use of the tools already used by our pupils to arrive at this desirable result. The implements handled in writing and drawing are really of a high order, and may be made conducive to no inconsiderable degree of skill. The slate-pencil is a more delicate instrument than the crowbar. The pen is mightier than the gimlet. The boy that can skillfully use the ruler, scale, and drawing-pencil will not be long awkward with the mason's trowel or the tailor's shears.

Industrial drawing is the middle ground where all of us can stand. It affords excellent mental discipline, cultivates the sense of form and proportion and the love of the beautiful, and forms habits of accuracy and fidelity. At the same time it is the most practical study of the schools, is intimately connected with a vast number of useful trades, and gives a thorough and varied training to the eye and hand.

Allow me to make a short quotation

from W. Smith, Director of Art Education for the State of Massachusetts:

"Commercially speaking, the power to draw well is worth more in the open labor market to-day than anything else taught in the public schools; and education in industrial art is of more importance to the development of this country and the increase of her wealth and reputation than any other subject of common school education. As a practical man, estimating the values of different elements in education as fitting people for useful lives, I consider that subjects like history and geography, which tell us of the past, or of the physical features of other countries, when weighed in the balance against industrial drawing, must kick the beam; for the first would only indirectly help us to an occupation in the daily life of the present, whilst the intelligent and well educated draughtsman is prepared for work in the great majority of industrial occupations, and in every country of the civilized world, wherever a workshop exists."

I put forth this subject, then, as one satisfactory both to the advocates and to the opponents of industrial education in this country; since it is suited to the genius of our institutions, and is the only feasible way in which training may be given to the pupils of the public schools, in the principles and practice common to all departments of skilled labor.

5th. The American idea of public education is that it should be liberal as well as free. It is not quite up to Milton's standard: "I call that a generous education that fits a man to perform all the offices of public or private life in peace or in war." Neither is it defined within the narrow limits set by our distinguished fellow-citizen, Mr. Frank Pixley—"reading, writing, ciphering, and a little history and geography."

The originators of the American idea in old New England, early made a law requiring the towns to employ masters "learned in the Latin and Greek languages and able to fit boys for college." Their descendants have followed in their footsteps and have carried with them into every State in the Union a liberal and extended scheme of popular education. There are excellent public high-schools in New Orleans, Savannah, and Nashville, as well as in Providence, Cleveland, and Sacramento. Indeed, in many of the new States, public education is crowned by a State University. Of this fullest expression of the American idea our own State of California is a noble example. The high-school, however, is a universal characteristic from Maine to Texas and from Florida to Oregon. So generous is the vast majority of Americans to the public schools that the circle of studies is enlarged to the fullest capacity of the pupils. The tendency is to pass beyond that limit, and thoughtful teachers and parents are beginning to cry halt!

But the general feeling is not that our children are over-educated, but that too much has been required in their earlier years, resulting in the evils of cramming, superficiality, and unhealthy crowding of the mental powers. A few, to be sure, grumble at high taxes and the over-reaching ambition of the poor; but the heart of the people is sound. Boards of Education are fostering a sickly sentiment or foolish dream of universal culture; but the average good sense of the great mass decides that the perpetuity of our institutions depends upon the intelligence of the sovereign people. High-schools and universities do not reach five per cent. of our population; but the five in a hundred are the leaven of the whole lump. As Americans, we feel that the caste of capital which is beginning to arise among us must not be allowed to become dangerously exclusive, and to monopolize intelligence and political preferment, as well as land and Government bonds.

The free high-schools open to rich and poor alike, treating all impartially, giving to every poor American boy a fair chance in the race for prosperity with his more fortunate school-fellow, will save us alike from the horrors of communism and the insolence of caste.

These five, fellow-teachers, seem to me to be the more prominent traits of our American common schools: they rest upon the local responsibility of relatively small communities; they are voluntarily attended; they are purely secular; they are not friendly to special training in manual labor; in their course of study they are liberal to the fullest extent of the mental capacity of the young.

There is another trait which may be fairly claimed as peculiar to us, and which has attracted the attention of foreigners, that is the equality according to the sexes in our schools. This is evinced in the prevalence of mixed schools, in the identity of the studies pursued by boys and girls, even through the high-schools; in the generous salaries paid to female teachers, their large number and honorable position. Of this I would speak more fully, had I not already occupied too much of your time. I offer the following questions, suggested by the thoughts presented in this address, for the consideration of this body:

1. Is it advisable to make our system of common schools national, and to place it under the control of a Federal Minister of Education?

2. How far is it wise to enforce the compulsory education law?

3. What steps can be taken to make moral training in our schools more definite and thorough?

4. What prominence should be given to industrial drawing in the course of study?

5. Is the course of study burdened with superfluous matter?

6. Is it the duty of the State to support high-schools?

May our deliberations upon these and other questions that shall be presented to this Institute give evidence of our research and earnestness. May the result be, that as "iron sharpeneth iron, so each man shall sharpen the countenance of his friend."

May we depart from this meeting readier than before to give a "reason for the faith that is within us" to every scoffer at public education. May we be imbued with a deeper sense of the holiness of our trust, with a profounder admiration for the temple of popular instruction that our fathers have built, with a greater reverence for the latent possibilities in the pupils under our charge. Let the fire of patriotism burn more brightly in our breasts, when the thought comes home to us that, as we have the best Government in the world, so we have what are for us the best schools—the most characteristic expression of our vigorous, individual, national life. Let us be clear-eyed to their excellences as well as to their faults, lest while we too eagerly pull up the weeds we also uproot the tender grain. Neither let us be too ready to adopt foreign fashions, remembering that the suitableness of garments is not so much in the fineness of their material or in the elegance of their cut as in this—that they fit the wearer. Nor in our impatience should we "force the pace" of the general public overmuch — the wisest leaders are in front, but never out of sight.

Above all, let us never forget our responsibility to our profession and to the coming age. We cannot think or say too often that our calling is the noblest and our care the highest. For we stand upon the narrow bridge of to-day, bearing in our hands the priceless seeds of wisdom garnered in the past—seeds that, under our watchful husbandry, shall ripen into fairer bloom and fuller harvest on the farther shore.

On motion of Supt. Davis, of Sonoma, the Association tendered a vote of thanks to President Mann for his able address, and requested him to furnish a copy for publication. Deputy State Superintendent Jeanne C. Carr then read a paper on:

The Industrial Education of Women.

Mrs. Carr said she had not prepared a lecture to read, but had come as a lawyer would, to plead a case, with her brief and her authorities. Much of the reading, from recent works on edcucation and descriptions of special schools, is necessarily omitted in this report.

The educational problem continually presents itself under new aspects, and we are made to realize more and more that it is not a fixed quantity to be weighed and measured, that both in quantity and quality it must change with the changing moral, intellectual, and social condition of the people.

Rip Van Winkle, waking from his long sleep, was not more unrelated to his surroundings than is the mere cipherer or grammarian, the accepted type of the pedagogue of the past generation, to the education of to-day, defined as Spencer, or Huxley, or Tyndall, as Dr. Chalmers or Dr. Channing would define education. Herbert Spencer says:

"In what way to treat the body; in what way to treat the mind; in what way to behave as a citizen; in what way to utilize all the sources of happiness which Nature supplies; how to use all our faculties to the greatest advantage to ourselves and to others; how to live completely—being the great thing needful to learn, is consequently the great thing which education has to teach." "To prepare us for complete being. This is the function which education has to discharge, and the only rational mode of judging of any educational course is to judge in what degree it discharges such functions."

I will not bring up our educational course for judgment, but leave each of you, fellow-teachers, with this high standard before your minds, to reflect upon the probable result upon the social and industrial condition of California if the 135,000 children who were attending our public schools in the year 1877, were taught there "how to treat the body, how to treat the mind," how to utilize the manifold sources of happiness afforded here; above all, "how to behave as citizens."

I will leave you to decide whether the grave charges so boldly made, at a recent meeting of distinguished educators, be true. "Under this system [meaning that under which most of us are at work], intellect is trained to adorn selfish ambitions, while the workshops and farms are surrendered to ignorance and blind routine. Invention lags behind necessity. The lands are worn out; laborers return to cheerless homes, where the wives are weary with unintelligent toil, and thus more and more classes are separated into castes, competition destroys fraternity, anarchy, convulsion, the logic of the commune takes the place of an equal administration of law and justice. The principle of competition, fostered in the school, runs into every avenue of business. We no longer blush to confess that money-making is our duty, that patriotism, honor, and honesty are no longer the watchwords of this nation."

But the testimony of our ablest physicians as to the effect of our present one-sided and incomplete process of citizen-making is too important to be overlooked, in an argument for the industrial education of those who must initiate whatever reforms are practicable. Dr. Buchanan said, only a few weeks ago, in a most able address before the University convocation at Albany:

"There seems to be nothing in existence, on any large scale, in the leading institutions which can properly be called

a *liberal education*. That which probably claims to be such, viewed from the standpoint of anthropology, is not only lame, feeble, and defective in the most essential elements of a liberal education, but positively illiberal in its influence upon the intellect and soul, as well as degenerative in its influence upon the body. Instead of making men and women, the colleges have so often broken them down, that it is made an argument against the education of women, that education is dangerous to health."

Dr. Seguin brings equally grave charges against the public schools, and declares that the alarming increase of near-sightedness has its counterpart in the mental and moral organization, where the balance is not maintained by the co-education of body, mind, and soul.

Nor is the testimony of eminent teachers less searching and conclusive, as you may see by referring to the last report of your Superintendent, wherever this testimony is brought within the compass of a few pages. We will take it for granted, then, that in many respects, the public education of the present generation is not discharging its two functions.

Again, I read: "Our civilization is a series of life deteriorating processes. The producing classes degenerate in mines and factories, artificial wants do their work upon the consumer; luxury determines the one, and want and misery degenerate the other. It is only through education that these deteriorating processes can be stayed—an education which has for its object the hereditary progressive culture of the race."

Every periodical, every religious and secular newspaper echoes the cry of public corruption. It is conceded that there are "certain dangerous tendencies in American life" which are unopposed and unmodified by our education. I have cut the fresh pages of the last *Atlantic Monthly* this morning, to find these pointed sentences: "We have a great increase and development of unfavorable aud disorganizing forces within our national life, and no corresponding increase of wholesome or vital activities. The morality based upon the religion properly professed, has, to a fatal extent, broken down. Multitudes of men who are religious are not honest or trustworthy. They declare themselves fit for heaven, but they will not tell the truth, or deal justly with their neighbors. The money of widows and orphans placed under their control is not safer than in the hands of highwaymen. There is no article of food, medicine, or traffic which can be profitably adulterated or injuriously manipulated, that is not, in most of the great centers of trade, thus corrupted and sold by prominent members of Christian Churches. The same writer also deplores the decay of patriotism and public spirit "among those who have in an average degree the benefits which our system of education now confers, who have been through our schools, edit newspapers and represent us in Congress." "They are not so much uneducated as miseducated." "Two things are especially to be noted in our popular school education, it usually leads to no interest in literature or acquaintance with it, nor to any sense of the value of history to modern men—a very serious defect; *and its most characteristic and general result is a distaste for manual labor*. We have some good schools, of course; but great numbers of teachers and principals of our high-schools in country places have for several years explicitly taught their pupils, and urged upon parents the sentiment that in this country education should raise all who obtain it above the necessity of drudgery; that there are better ways of making a living than manual labor, and that these higher ways will be open to all those who get an education. All this has resulted in a dainty,

effeminate, and false view of the world as a place where only uneducated and inferior people need work hard, or engage in toilsome and unattractive employments."

The example of the classes thus raised above drudgery draws from Dr. Holland, in the last number of *Scribner's Monthly*, the declaration that it is for the lower classes, an education in stealing, in the betrayal of trusts, watering of stocks, grain gambling, stock gambling, in the use of power without heart, without conscience, honor, or patriotism.

These, then, are the social results of making *individual culture the end of education*. The same impulse which sent the early convert to Christianity into wilds and deserts to perfect his spiritual nature, has made high scholarship the goal of youthful ambition with us, an ambition as selfish and anti-social as those which destroyed older civilizations.

"Individual education means selfishness, which, winding its way from the schoolroom to the cabinet, creeps down thence to the lowest shop, and involves the nation in ruin," while *race education*, setting the claims of the race above those of the individual, being at the same time functional and hereditary, advances the individual, and being advanced by him. Man, not scholarship, is the aim of race education.

"Race education strives for a strong, healthy, and normal humanity; scholastic education sends its literary firework up into the clouds, unconcerned about the unenlightened masses below." The development of the race and the individual is best secured when the first is treated as the end, the second as the means.

"Race education, or progressive hereditary culture has a double duty to perform, the correction of physical, moral, and mental morbid tendencies, and developing and strengthening the normal activities of man in the most susceptible and pliable period of infancy and youth."

The adaptation of woman to this work of hereditary progressive culture would seem to need neither comment nor illustration.

Not only the nurture of the race in infancy is confided to her, but she is intrusted here in America with a large part of the work of the schools. Europe keeps its army of 500,000 young men for defense, who in time of peace are living in idleness; we have an army of 500,000 young women engaged in the most important of all activities, our defense against the ignorance which Europe has been sending to us for the last fifty years. Of these female teachers, the larger part are promoted, after a year or two of service, into the headship of families, leaving their place in the schools to be filled by others in turn. Whether we look upon women as mothers or as teachers, we must recognize the importance of their work in any determination of the question of social progress.

These young women have, by a false training and false notions of what education is, been engaged in overtasking and overestimating their pupils; in devitalizing and, by so much, demoralizing the present generation.

They need to be taught that the priority of educational work is: First, organic education, or the training of the organs by the exercise of the functions, as Frobel put it, *education by play;* second, to develop the functions by the judicious exercise of the organs, the organs of sight, of hearing, of touch, and then to elevate these functions of seeing, hearing, touching into the rank of capacities for the various activities of life.

It is of far more consequence that our youth should attain the perfection of body which distinguished the Greeks, than that they should be able to read Homer in the original; for no matter how great one's intellectual resources may be, they are un-

availing unless the organs be trained to execute the behests of the mind.

And it is of far more consequence that the teacher should be able to lead the child's first experiments in life intelligently, with a full knowledge of its three-fold nature, than to be able to express herself in classical or modern tongues, other than the mother tongue; because to teach well is not only to spend, but to husband the vital resources of the next generation. It is not so much to increase the specific knowledge of this or that, as to increase and harmoniously develop the capacity for all knowledge, and especially to develop the capacity of applying knowledge to the improvement of our life.

It would be interesting to trace the ideas now modifying our education, especially in the primary range, back to the grand individualities, where these ideas originated; to follow the experiments of Pestalozzi, at Stanz, Berghof, and Yverdon; or De Fellenbergs at Hofwyl. But I can only call your attention to two or three points. That the great educators have been philanthropists, have made a religion of education; that they have insisted upon education by work; and that they have exalted maternity, and given a new dignity to womanhood.

Early, Pestalozzi wrote much of home education and of the influence of mothers, but later he frankly stated that he had made the mistake of considering these doctrines applicable.

We hear the same doctrine in every meeting of teachers, when industrial education is considered, and they are not more applicable here in America than they were in Switzerland fifty years ago. It is well to emphasize the value of the home factor in education, but the homes of by far the greater part of our population do not furnish the means, the parents have not the requisite knowledge to enable them to co-operate effectively with the schools in a system of race education. We cannot at present organize parental interest and affection into this beneficent service, and are forced to aim directly at the pupils in our public schools, who will soon take the place of parents and patrons.

Dr. Seguin says that when he watched at Vienna the immense efforts made, and the treasures spent by nations, partisans, and sects, to take possession of the child, he was forced into a new train of reflection upon the nature and aims of education. We must aim at the possession of the child. "The restless activity of the child is the foundation of the indefatigable enterprise of the man." He must be educated *in* the industries, not so much for the industries as *for himself*. All through the discussions, which are now frequent upon this subject, there appears a misconception in the minds of both advocates and objectors; the fundamental claim of industrial education is not so much on account of its *usefulness* as for *its educational value*. Rousseau and Pestalozzi based their theories upon the fact that work develops virtue, but it was left to Froebel to announce more fully the philosophy and the ultimate possibilities of such development.

All the manifold experiments, the labors and sacrifices of Froebel, sprang from a wide philanthrophy, a deep insight into the proximate and remote causes of social disorders, and a tender sympathy for his race. "Education by play" was a term which briefly described the methods he invented for organizing the spontaneous activity of childhood into a system of instructive exercises, adapted to the harmonious development of the threefold nature of the child. "Education by work" was his watchword for youth also. With these two simple prescriptions, he hoped to overcome the evils of hereditity, of environment, and stem the fearful current of physical and moral degeneration. He had little

faith in reformatory efforts when habits of indolence had created a soil favorable to the growth of vices; nor did he believe that the mind is like a blank paper, ready for any impression. He found that human progress depends upon the law that hereditary tendencies may be changed by education, and that the results of education may be transmitted by inheritance, another law which warrants the most untiring, the most costly, the most comprehensive educational work, beginning in the home and completed by the State. Believing that there is nothing more divinely beautiful than a noble man or woman, he argued that the State should be a Providence shaping each child to a noble purpose.

Oh, kindly prophet of the good time coming! Oh, gentle priest of the new religion, which reconciles humanity with itself, man with nature, and earth with heaven! I see thee placing the little child in our midst as the hope of all the coming ages. I see the marriage of order and beauty, of happiness and activity. I see how man may become his own creator, as I watch the growth of the child, the heir of all the ages! And now I have hope for the world, for I also believe that the education of one generation appears as a hereditary tendency in the next, and that man may become his own savior by obedience to the laws of his being.

Froebel showed that this education must commence with the first period of conscious existence, at the hand of the mother. All over Germany, Kindergarten associations for the instruction of mothers are now common, and children thus prepared in the home for the wider social life of the Kindergarten, have the same advantage that the Kindergarten pupils possess when they are advanced into the primary school. (The economy of the Kindergarten has been fully demonstrated in St. Louis, where over forty of these schools are maintained from the public treasury. It is found the after progress of scholars is so much more rapid that there is a saving in the cost of instruction in the higher grades).

Froebel enlisted the sympathies of noble women in behalf of the ignorant and neglected of their sex, and made of these missionaries of the new education. He realized that the condition of depressed, ignorant mothers, without means, with no power but that of pleasing, was in itself the greatest obstacle to race improvement. "Do men gather grapes of thorns, or figs of thistles?" he said; and on showing that a true home education is impossible until the mothers have been rightly educated, demonstrated the need of special training for the vocation of motherhood. Like Pestalozzi, he believed that training for a vocation was the duty of the State, that every man and woman should have a vocation, and as many avocations as possible.

Whatever is best in the public education of Europe has sprung from seed sown by these great educators who were lovers of the race, and who made education their religion.

The progress of industrial education in Europe has been rapid beyond precedent. The German Minister of Education writes to us: "Our schools aim to prepare the child for self-support, for domestic and public duties, and we have introduced exercises in mechanical and agricultural operations, from their practical value in developing the qualities of self-reliance and independence. From simple exercises with the saw, the file and the chisel, the hoe and the pruning-knife, our pupils are determined towards certain trades or occupations, and their special aptitudes are developed."

The knife and the needle are as essential in the Swiss schools as the slate and pencil are in ours. Germany has fourteen hundred and fifty special industrial schools and over 50,000 scholars in attendance.

Is it not time for us to consider whither we are drifting, if it be true that "types deteriorate by the lack of training of the senses and the hands?" Is the type of "young America," or the "girl of the period," exactly the model type for the next generation? I do not wish to undervalue the spiritual nature of man, or what we call spiritual and moral agencies for improvement of character. But Paul hints at a significant law of evolution, "first the natural, then the spiritual;" and I would that every Sunday school in America included in its work a practical knowledge of the duties of every day life, using not only the Holy Scriptures, but science primers, as helps to this knowledge.

We need to organize and unite the now divided ranks of teachers into a solid army, aiming directly at social improvement as the end of education.

It was a great step in this direction when we consented to write upon our school houses Plato's motto: "Whoever educates a woman, educates a race."

Whether we regard women as mothers or as teachers, they are equally workers; they have in all times borne a full share of the burdens of the industrialist, in addition to those which belong to them by virtue of their organic constitution.

Is it not a fair question, whether a part of the vast sums provided by the nation, and dedicated by the State to special education, should not be devoted to the special training of women for her work in the home, in the school, and for the right exercise of her social powers?

Her competency in the home largely determines whether it shall be the abode of comfort or of penury. Her physical constitution still more largely determines the development or the degeneracy of the race. I read from a speech of Emilie Davies, before the National Association for the Improvement of Social Science: "As long as women live only for trifles, men will only live for making money."

Is it not a standing wonder, that while the gifts of rich men and women flow in a continuous stream into institutions already well endowed for the training of men in the various professions, not one is found ready to endow a training school in home culture and the household arts, and that among all the industrial colleges endowed by Congress, only two or three have made this a specialty.

If you reply that this is what female colleges and seminaries are doing, I can bring an overwhelming array of evidence to the contrary, from physicians, educators, and political economists. We have no institutions which benefit those who make the loaf and those who eat it alike, where the application of principles and knowledge of those principles are kept in close alliance. I know of one public school, and only one, the Girls' High School in San Francisco, where the attempt is made to impart any knowledge of domestic science. *The public have yet to be educated to understand that these subjects have a rightful place in the schools.* We are behind all civilized nations in these respects.

(Mrs. Carr here described the school of Dr. Kohler, at Göthe, the Elise Lemonnier schools at Paris, the South Kensington school of cookery, Miss Corson's and Miss Parloa's schools in New York and Boston).

Is the conflict between the ideal and the real never to end? Never, until there is a true and lasting co-operation between the home and the school, effected by the better education of mothers. The mothers must be taught that any system of education which ignores work is false, partial, and one-sided. By work man is perfected. What we cannot achieve, we but partially comprehend. Froebel said, "we learn through doing." It is the divorce of learning and doing for the first twenty years of

life which is making the misery of our times, and increasing the numbers of criminals and paupers, of industrial imbeciles.

It is doubtful whether woman will ever take her true place as educator of the race until she ceases to be a ward of the State, ceases to share its guardianship with idiots and criminals. Give her a noble part to play on the stage of public affairs, and she will help to make education a religion, for she is essentially more religious than man. She will ask and obtain for her children an education in Literature and for Life, for its varied duties and employments. She will teach them that labor is necessary for the moral development of man, that it is his mission, his destiny, his consummation.

Viewed from a moral stand-point, it is an obligation; from a social one, it is a necessity; the right to labor corresponds with the right to live.

Froebel said, "Let us live for the children." It is not possible to live thus, until woman is self-possessed and free, till the reign of brute force has passed from the home and the statute-books. Give to the mother the weapon more potent than the sword, which falls soft as the snow-flake, yet is stronger than the torrent, and she will prove that justice, peace, and good-will are not unattainable ideals.

I do not despair of the good time coming, because I see that *competition*, not co-operation, is now the law of the home, of the school, and of society. I know that before the Reformation the man who would have demanded that laboring men should be taught to read and write would have been a revolutionist of the most dangerous type. Sydney Smith asked, "May *women* learn the alphabet?" and it was much harder to substitute the alphabet for the rosary in the schools, a generation since, than it is now to substitute the tool for the text-book. The true principles of co-operation and of co-education are slowly leavening society—co-education of hand and brain, of body, mind, and soul. I seem to see in the not distant future the child becoming from its cradle to maturity, physically, morally, intellectually, and industrially, the care of the State, and not less, but more, the chief care of the family. I seem to see Fenelon's words written over the domestic hearth, and the teacher's desk, "I prefer my family to myself, my country to my family, and humanity to my country."

At the conclusion of this address the Convention went into a

BUSINESS SESSION.

The Committee to prepare a plan of permanent organization and frame a Constitution for the Association, made the following report:

Your Committee on a Constitution have the honor to report the following:

PREAMBLE.

For the purpose of furthering the educational interests of the State; to give efficiency to our school system; to furnish a practical basis for united action among those devoted to the cause in which we are engaged; and to elevate the office of the teacher to the true rank among the professions, we the undersigned do hereby adopt the following

CONSTITUTION.

SECTION I. NAME.—This organization shall be known as The Teachers' Association of California.

SECTION II. MEMBERSHIP.—All persons who are now, or may hereafter be, officially connected with the Public Schools of this State, may become members of this Association, if recommended by the Executive Committee, by signing the Constitution and upon payment of an annual fee of fifty cents.

SECTION III. OFFICERS.—The officers of this Association shall be a President, three Vice-Presidents, a Secretary, a Treasurer and an Executive Committee consisting of nine members, including the President and Secretary.

SECTION IV. ELECTION OF OFFICERS.—All officers of this Association shall be elected at the Annual Meeting.

SECTION V. DUTIES OF OFFICERS.—The duties of the President, Vice-Presidents, Secretary and Treasurer shall be the same as those usually devolving upon such officers in parliamentary bodies.

SECTION VI. DUTIES OF EXECUTIVE COMMITTEE.—It shall be the duty of the Executive Committee to fix the time and recommend to the Association the place of holding the Annual Meeting; to prepare a programme for said meeting; to procure the attendance thereat of competent lecturers, etc., etc., and to perform such other duties as may properly devolve upon them.

SECTION VII. AUTHORITY.—Cushing's Manual shall be authority on all parliamentary questions arising in the discussions of this Association.

SECTION VIII. INDEBTEDNESS.—No indebtedness shall be incurred against this Association except by a vote of a majority of the members of the Executive Committee.

SECTION IX. CLAIMS.—All claims against this Association shall be referred to the Executive Committee, and if found correct the same shall be paid by the Treasurer upon the order of the Executive Committee, signed by the Chairman.

SECTION X. ALTERATIONS OR AMENDMENTS.—This Constitution may be altered or amended, provided at least one day's written notice be given in open session of the Association, and, provided further, the same shall be approved by a two-thirds vote of the members present.

We suggest further, that a copy of this Constitution be furnished by the Secretary to each County Superintendent, with instructions to solicit the signatures of such teachers in his county as he would deem desirable members of this Association. Respectfully submitted,

ALBERT LYSER,
F. M. CAMPBELL,
J. C. GILSON,
E. W. DAVIS,
GEORGE E. ROBINSON,
Committee.

On motion of Mr. Swett, the Constitution submitted by the Committee was adopted as a whole.

Supt. Campbell moved that the Convention adopt the suggestion of the Committee, and instruct their Secretary to carry out the same; which motion was carried.

The Committee on Nomination of Officers signified its readiness to make a report, and the Committee was directed to report on Friday evening.

The Convention then took a recess until evening.

EVENING SESSION.

At 8 P. M., the Association again resumed its labors.

Prof. Bernard Moses, of the University of California, was introduced, and delivered the following lecture on

The Field of Academic Learning.

There is a fruitful source of error in the disposition of men to form their judgments, regarding the general tendency of human affairs, simply from the experience of their own times. Those who base their conclusions on such data, accept the apparent drift of the age to which they belong as indicating the direction of human development. Under the Roman Empire, they would have conceived the progress of the race to mean the loosening of the bonds of obligation, the increase of social immorality, and the growth of a spirit submissive to despotism; in the middle of the seventeenth century war for the maintenance of religious forms would have appeared to them the normal condition of civilized nations; and in the present they are convinced by the great noise of social agitation, that humanity has been and is tending in the direction pointed out by the communistic demagogue. But he who rises to a higher point of view is able to see that throughout modern times there has been a grand general advance, notwithstanding periods of aberration, of regression, of political anarchy, and of moral decline. He sees that the ideas of communism, which are just now finding many advocates and causing much uproar, are not a new revelation, but rather an old sign of an age of transition. These ideas finding expression are the symptoms of a disease in the social body which regularly attends the change from one phase of progress to another. They have appeared, therefore, with special prominence and influence in our great revolutionary periods of the world; in the decline of Grecian civilization, at the fall of the Roman republic, in the age of the Protestant revolution, and in the present they indicate no general tendency, but rather the aberration of ill-balanced minds over which social forms growing obsolete and conventionalities becoming antiquated have ceased to be powerful. Not only do they indicate no general tendency in the growth of society, but they even represent a reaction from the course which it has most persistently pursued, a reaction, however, spasmodic in its influence, and, notwithstanding its repeated occurrence, utterly inadequate to abolish, or even to weaken, the instinct and institution of private property. In order, therefore, to judge wisely of the ideas and plans of the communists, it is necessary to compare them with the general tendency of advancing civilization respecting those things which they concern, and with those principles of human nature on which this tendency depends. In making such a comparison we find this to be true: in the early stages of civilization many things were held in common by the community, the tribe, or the nation; but with the increasing division of labor, with the growing complexity of society, with that constant multiplication of physical and spiritual wants which goes hand in hand with social development, more and more things have gradually ceased to be held in common and become the private property of individuals, and this, too, in spite of Plato, of Thomas More, in spite of the Anabaptists of Münster and the political theorists of the French Revolution. At the same time in man himself, as he has grown from a savage to a civilized being, the instinct of ownership has grown stronger and stronger; and it requires no superior wisdom in order to see that the institutions of society and of the State, if they are to be lasting, must be founded upon, and supported by, the instincts and sentiments of human nature.

The basis of judgment illustrated in this instance may be applied in the consideration of other questions. Take, for example, that concerning the proper practical relation of Church and State. We, as

loyal citizens of the republic, unquestionably accept the policy universally adopted throughout this country—a policy which grants freedom to all religious associations and insures to them independence and protection, so far as they do not interfere with the rights of the State or violate the principles of morality. Yet the grounds of our conclusion in this matter are not that this relation has been the prevailing relation in the majority of Christian States during the greater part of their history; but rather, in the first place, that throughout the fifteen hundred years, during which Christianity has been recognized as the predominant faith of the most enlightened nations, the principle of freedom of worship has been gradually gaining adherents even until now—the tendency has been toward complete freedom of worship; and, in the second place, that religion is a personal sentiment, varying in its expression, and no more subject to governmental dictation and direction than are the affections of the human heart.

It is profitable to take account of the general tendency of modern progress, not only with respect to such topics as these, but also in considering the subject on which I have proposed to speak, namely, the field of academic learning; and by academic learning I mean all that properly embraced in a system of public instruction which leads up to and culminates in such institutions as are devoted to the highest instruction. Looking back, therefore, to the beginning of the Middle Ages, we find a state of society whose most prominent characteristic was its ignorance. At this point, the whole realm of knowledge which extends itself before the mind of the modern scholar was as yet to be won. The culture of Athens and Italy had declined, and the achievements of their brilliant intellects were forgotten. All Christendom lay in the shadow of ignorance. The laity for centuries, with a few rare exceptions, were unable even to sign their own names; and for a long period the clergy were scarcely their superiors. Among the causes that led to this intellectual darkness were the extravagant estimate put by the later Romans on material means of satisfaction, the migration of barbarous nations from the north over regions hitherto occupied by civilization, and the neglect of pagan literature by the Christian church.

In this last circumstance there was an influence acting directly to hide from the world the results of pagan thought, and to prescribe for succeeding generations the limits of knowledge. The separation of Christian from pagan education was begun at Alexandria, by Clement, and the prejudice which led to it remained after Christianity had become the established faith of Europe. It showed itself not only in the condemnation of pagan learning and physical science by individual members of the church, but also in the decrees of councils, which "prohibited the reading of secular books by the bishops."

After the rise of the papal power and the establishment of the Holy Roman Empire, the affairs of the world were conceived to be divided between the Pope and the emperor. Both were the ministers of God on earth: the Pope charged with the spiritual interests of men, the emperor with their temporal interests. Care for men's spiritual well-being involved the control of their mental training; and thus, in accordance with the then accepted theory of human affairs, education fell into the hands of the Church. What was left to the care of the State, or of society at large, was simply that physical training which prepared the youth for the duties and honors of knighthood. Thus the

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SUPPLEMENT

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education of the times was divided between the cloisters of the monks and the castles of the knights. The monks aimed to train the mind, the knights to develop the body.

Charged with the spiritual interests of mankind, the Pope was not slow to discover that in this was presupposed the superiority of the Church to the State; and this assumed superiority was for a long period practically maintained. Thus the Church became the most important element of society. Its influence determined the character of mediæval thought. It was the sole patron of education, and held within itself all the learning and culture of the age. Its dogmas were criteria to which the results of speculation must conform. They fixed the limits of learning. The great teachers of the middle ages, except in so far as some of them were prophetic of the coming change, all assumed the accepted Christian theology as their point of departure. These teachers wished to know the world only to such an extent as would enable them to judge of its relation to God. They accepted the teachings of earlier philosophers only so far as these teachings could be reconciled with their theology. And yet these dogmas were not all essential to the Church, as an organization of religious men seeking their own and others' spiritual welfare; nor had they, in certain cases, any better foundation than vulgar tradition or popular belief. Nevertheless, the Church, in its pretension to omniscience, put upon them the stamp of its authority, and they became a standard by which were to be measured the conclusions of science and philosophy. The earth does not move was such a dogma. Men were free to inquire and speculate about the earth, but they were not free to deny this proposition. This absolutism of Church dogma fixed the character of mediæval learning and determined the circle of knowledge. This system of thought, which has been designated scholasticism, was philosophy submitting to correct its conclusions by the accepted teachings of the Church. When a philosopher came, developing his doctrine independently and without regard to ecclesiastical teaching, when a Galileo asserted that

the earth *does* move, the fence that had hitherto surrounded the field of learning was broken down, and the human mind went out into a broader place.

The first considerable extension of the realm of knowledge was made through that great intellectual movement which marks the transition from mediæval to more recent times, namely, the revival of learning. This opened to modern eyes and modern minds a buried and all but forgotten civilization—a civilization which, in the glory of its art, the beauty of its poetry, and the sublimity of its philosophy, transcended the highest conceptions of those to whom it was revealed. The study of antiquity drew to itself a constantly increasing number of scholars, whose enthusiastic devotion has never been equaled, except, perhaps, by the devotees of modern science. But on this study of ancient literature and ancient institutions the Church looked with suspicion. It feared the anti-Christian influence of pagan thought. It feared a revival not only of the learning, but also of the worship of paganism. It feared the loss of stability and influence in the presence of the unshackled mind; and, therefore, the means for the development of the new learning had to grow up without the cloister and find other supporters than the clergy. States, princes, and cities then vied with one another in becoming the patrons of scholars and the founders of schools. The oldest universities of Germany and Italy were established under the impulse of this spirit, and thus the demand for instruction in the new field, which the Church would not satisfy, and which the great mass of the common people were too ignorant to appreciate, was met by the wise liberality of princes, acting in behalf of the States, with whose interests they had been intrusted.

The direction in which this zeal for ancient learning first manifested itself was in the study of the literature and institutions of Rome. The traditions of Roman greatness had survived the dark ages; the idea of an universal monarchy, all but realized under the Cæsars, had found a certain expression in the mediæval empire; and the Italians of the twelfth century vainly believed that the Imperial government under which they lived was a continuation of that established by Augustus. After the revival of intellectual activity, this belief was powerful in stimulating men to study the legislation of Justinian, the laws of ancient Rome, which, with justice, may be pronounced the masterpiece of human civilization.

The school at Bologna became the principal seat of this study. This Roman Renaissance was succeeded by an awakened desire for knowledge of Grecian antiquity; and the misfortunes which overtook the Eastern Empire in the middle of the fifteenth century, gave Western Europe increased facilities for obtaining this knowledge. The Greeks, fleeing from Constantinople before the conquering Turks, became in Italy teachers of the Greek language, and the Italian schools furnished instructors for the universities of England and Germany. With the development of the new learning, theological teaching came out of the cloisters and was established at the universities. The Church ceased to be the sole patron of education, and scholasticism no longer covered the whole field of thought and inquiry. A new topic was added to the curriculum of human knowledge. To the *literæ divinæ* were added *literæ humaniores*. To the study of divinity was added the study of the humanities.

It is not to be supposed, however, as it is sometimes suggested, that, with the revival of ancient learning, with the revival of the knowledge of ancient law, ancient language, ancient literature, and ancient art, the system of scholastic thought came

to an end. By no means. The spirit of scholasticism survived this revolution, and has continued ever since to hold dominion over a part of the enlarged field of knowledge, but no longer over the whole field. Between this ancient learning and the circle of scholastic studies the attention of the learning and the learned world was divided. In the monasteries only the latter prevailed; while in most of the young universities, both the humanistic and the scholastic tendencies were represented, and for three or four centuries all the force of academic thought drifted in the line of these two tendencies. Such was the first great extension.

During the age of the Renaissance, and the centuries immediately following it, other discoveries were made, which, in due time, led to another great enlargement of the field of learning. These were discoveries in the realm of nature; such, for example, as those of Copernicus, Torricelli, Pascal, and Lavoisier. But through the influence of the attractive revelations of antiquity, and the powerful prejudice of the Church, it was a long time before the subjects investigated by these founders of modern science were sufficiently explored to become fit material for academic teaching. The hints of the early scientists were, therefore, left to comparative neglect, and the great book of nature, whose first pages they had read, found no place in the curriculum of the schools. But, in the present century, we have entered upon another transitional age, the second great intellectual revival of modern times, an age comparable with that of the earlier revival which ushered in the period of free thought and modern culture. These two ages are alike, in that we can fix for neither definite limits in time, and say, here it began and here it ended. They are alike, in that they are marked by the culmination of ideas and tendencies which have their root and beginning in earlier centuries. Both were preceded and introduced by a radical skepticism, which abolished Christian worship, and set up, in the one case, the paganism of antiquity, and, in the other, the adoration of reason. In both we observe deep political agitation, looking to the emancipation of classes hitherto in subjection, and to the reorganization of political systems on a broader basis. In both we find numerous instances of that excess to which some minds are subject in view of enlarging liberty; minds which are blind to the distinction between liberty and license, and which are prone to disgrace a noble cause by confounding freedom and anarchy, and identifying pure republicanism with pure communism. The age of the Renaissance and our own stand prominent in the history of the world for their advocacy of undisguised communism.

But the likeness does not end here. Finally, in our times, the fragmentary and unsystematic investigations of earlier centuries have grown into a systematic and well-ordered search for scientific truth, and the results of this search, not less wonderful to the nineteenth century than were the revelations of the literary revival to the fifteenth, have grown into that body of knowledge which we call modern science; and this science, opposed at first by the Church and neglected by the humanists, now takes its place by the side of scholasticism and the humanities in the great universities of the world, and forms a new addition to the field of learning. In this is seen another point of likeness in the two ages brought into comparison. Each adds a new province to the realm of academic thought. The one adds the humanities; the other, modern science.

There are doubtless those who are willing to accept this fact of the gradual extension of academic learning as the rational basis of a plan to bring all arts and trades within the field. On the

ground that the history of modern times shows a gradual enlargement of the scope of teaching in the schools, they may make a plausible argument in favor of teaching in them everything people have need to know. They may, perhaps, assert that the general tendency manifest in the history of education points in this direction. But right here there is danger of error—danger of failing to comprehend the real significance of the progress made. While there has, unquestionably, been a strong tendency to extend academic teaching over more and more subjects, there has been at the same time an equally certain tendency to confine this teaching more and more strictly to principles and general laws and whatever explanation and illustration is necessary for their proper comprehension. Before the invention of printing the students of the universities of England and Italy were numbered by thousands, where they are now counted by hundreds. But no intelligent man will accept an attempt to account for this state of things on the ground that these numbers represent the comparative intellectual activity of the two ages. A more reasonable explanation is, that in the fourteenth century books were scarce and expensive, and that students, men of mature age as well as young men, resorted to the universities, not merely for discipline and mental development, but also to get information on the various topics then most prominent in men's minds. But, after the development of the art of printing, and after the establishment of rapid and comparatively inexpensive means of multiplying books, it was no longer necessary for those who wished simply to be informed, or to gather information on any given topic, to visit the university. The number of those attending has, therefore, diminished, and the character of the instruction has been so modified in recent times as to give greater prominence to fundamental principles. It has been left to the press to furnish the great bulk of information needed; and to the desire for gain to secure the profitable application of the principles taught in the schools, with, at the same time, a recognition of the fact that the application of any scientific principles which apply in a given business can be best learned in actual connection with that business under its normal circumstances, namely, where it exists under the free competition of the commercial world. And this tendency with regard to academic instruction has been maintained; its results are manifest in the methods and subject-matter of teaching in the present. The teachers of science, for example, unless I mistake their spirit, are disposed to lay more and more stress on the inculcation of the fundamental principles and laws that underlie natural phenomena. It is their duty to teach, explain, illustrate every new principle that is discovered, but they do not concern themselves, nor is it their duty to concern themselves, with every new application of a principle long familiar. They teach principles and laws, and what is necessary to make them comprehended. Here is the proper field of academic instruction in science; here we discover its rational limit. What lies beyond this bound is a limitless realm for the practical application of principles already known. This is the realm of business, and here the state that is wisely directed will not enter. It will, however, hold out such inducements for the cultivation of this field as are consistent with the rights of individuals and of society. This is what our own and every wise government does through its system of patents; it grants to every finder of a new application of an old principle the exclusive use of his discovery for a given number of years. Thus the State employs the universal desire for gain to promote the development of a department

where it cannot engage directly without becoming an active agent in private business. For learning the multifarious applications of scientific principles to practical ends, that have already been discovcovered, the State offers no *legal* privilege which can be the source of pecuniary gain, and it is not the business of academic instruction to impart this knowledge; yet society at large by its very organization offers special rewards to those who possess it. To have it is to be skillful in some department of industry, and to be skillful is to be lifted above the fierce competition of unskilled labor, and, therefore, to be able to demand a greater return for services rendered. And this greater return, which comes as a reward to him who has planned with foresight and labored with perseverance and self-sacrifice, is a just and efficient stimulus to the acquisition of knowledge concerning the practical application of scientific principles; it is the stimulus which society everywhere in its most healthful condition offers for gaining knowledge of business and for exercising prudence and industry in its conduct.

Not alone in the department of science is there seen a disposition on the part of teachers in recent times to attach supreme importance to fundamental principles and general laws, in fact to make all school instruction aim at an understanding of these as its end; but also in other departments of learning the same spirit is manifest. In language-teaching it is clearly evident. The methods and objects of a century and a half ago have been, to a very great extent, abandoned. Facility in the use of a foreign tongue, either ancient or modern, is no longer the highest aim and ultimate object of instruction in this branch. The academic teacher of language, who is of the present, has a higher end in view. He requires of his pupils information concerning the organization of languages and their forms in expressing ideas; but he goes further than this, and on the basis of this information seeks to give them a knowledge of the principles and laws which underlie linguistic phenomena. So in history. History is no longer regarded as merely a succession of events to be told over before the youth, like beads on a string; it is the record of the life and growth of humanity, and he who understands it must know the ideas, the sentiments, the passions that have moved the nations and the race in the several stages of development. It involves a knowledge of the principles of human nature and of their influence in making society what it has been and what it has become. It involves, moreover, a knowledge of the environment of man in the various periods of human existence; in short, an understanding of the forces subjective and objective, together with the limit of their action, through which the nations have been gradually lifted to a purer life and nobler laws. The progress of political economy also illustrates the same general tendency. At first it was taught partly as an art and partly as a science. Now it is taught purely as a science—a science which has as its subject-matter the phenomena of industrial and commercial life, and as its aim to trace these phenomena to their motive principle in human nature and to determine the general laws under which they exist. The special application of these purely scientific conclusions in business or in legislation cannot be definitely taught in the schools; for such application is conditioned on the varying circumstances of society, and these circumstances can be properly estimated only by the business man or the legislator.

Here, then, in the line of demarkation between the teaching of principles, with what is necessary for their illustration, and the teaching of their manifold applications, we have the proper limit of

academic learning. With the progress of modern times the field has grown broader and broader, and is destined to still further extension, yet not by encroaching on the realm beyond the limit we have established, but rather by extending this limit to embrace the new laws and principles that are to be unfolded in the future advancement of scientific thought. It is possible, however, that before the present tide of affairs turns, we may be swept back against the current of human progress and be compelled to see the educational system of the country temporarily disorganized and debased through the establishment, around the schools and the universities, of institutions for teaching the details of all departments of industry and commerce; for having taken a single step in this direction there is no logical ground for not teaching every kind of business, from the application of the principles of chemistry in the manufacture of patent medicines to the applications of the principles of mechanics in the building of steamships.

The field of academic learning, as described by the conclusions already reached, is of definite outline, is capable of thorough cultivation, and covers those things which it is most essential for men to know. Mind and character are not best nourished and unfolded by learning to apply particular principles to practical ends, but rather by developing and reflecting on the fundamental principles and laws of several departments of knowledge; and the continued prosperity of a country depends more upon its people than upon its material resources. No nation has ever declined through poverty while its citizens retained vigor of intellect and nobility of character; but many nations, by neglecting their higher interests, and by fostering and relying for their welfare on ability to accumulate wealth, have gone to irretrievable ruin.

A strong stimulus to the acquisition of property, and consequently to the development of national wealth, is ever present in human nature; in the desire for the distinction, for the physical means of comfort and for the power of benefiting others, which great possessions afford. Men have little need of other encouragement to use all means promising success in this direction than their inherent self-interest. But there is not in the nature of man the same immediate and ever-active motive to the development of the higher powers of the soul, yet the well-being of a community or of a commonwealth depends rather upon what men are than upon what they have. It is evident, therefore, to what ends society should devote its wisest care and most thoughtful attention.

The various subjects, as language, chemistry, and economics, properly embraced in that system of public instruction which has its head in a university, are not so many sciences entirely separate and distinct and without inherent or essential connection, but are just what is expressed in the term by which they are ordinarily designated, branches of learning, and as branches indicate a common stock made up of those fundamental principles and points of method common to all departments of learning. Between these departments there is a certain necessary connection, so that a thorough understanding of any one involves a degree of knowledge of many others. In this we see the reason for maintaining, especially in the higher grades, instruction in all departments side by side in one great institution that covers the whole field. This arrangement is advantageous in various ways. It is the most economical, inasmuch as it obviates the multiplication of instructors and apparatus in those branches which are subordinate yet essential to the proper mastery of the subject of the chosen department, which could

not be avoided if the different departments were taught in different places. It gives the student better instruction in all branches subordinate to his main study than he would receive in separate special schools. It makes it possible for him to gain very early a general idea of the several divisions of the field of learning, and thus to make an enlightened choice as to the course he will pursue. It brings into daily contact young men who are studying in different directions, and thus prevents the growth of scientific bigotry among them, or the belief on the part of each that what he is attempting to master is all there is to be known. It enables them to get broader views than those which obtained in the village school, and by mixing with men of special acquirements in different realms of thought, to gain unconsciously the power of correct judgment. The conclusion, therefore, at which we arrive is this, that that education which young men and young women need after they have attained such a degree of maturity that they may be wisely trusted beyond the circle of direct and immediate home influence, may be best imparted where all departments of learning are embraced within the scope of a single institution; and we arrive at the same conclusion, whether we consider the economical interests of those who provide, or the advantage of those who receive instruction.

Of the numerous questions that arise in connection with this topic, I urge for your consideration only one: Who shall provide this instruction? I assume the need of it as undisputed. I assume as evident that the best interests of any given nation demand that its educated men be in sympathy with its true spirit, and that they can be best made to feel this sympathy by being educated in that nation. The means of this education may be provided by private persons or corporations, by the Church or by the State; and that power which performs this work better than any other, and with less interference with the rights of persons and the rights of the community, has in this a reason for existence in relation to this end, a reason for being intrusted with this work. Granted that private persons may, without infringing the rights of others, furnish the means of education, before we conclude to leave this part of the business of society in their hands, we have to inquire whether they will perform it better than any practicable association.

The principal motives that will move individual men in this matter will be either those of advantage, as in all business transactions, or those of benevolence. But inasmuch as institutions for the higher education never have been and never can be even self-supporting, there is here no room for the exercise of motives of gain; and those of benevolence have not been adequate in any people in the past, and we have no guarantee that they will be adequate in the future, to give any people a system of higher instruction in keeping with the existing needs. The great universities of Europe have grown up under the fostering care of the State, and those which have done more than any others toward giving a character of respectability to the higher education of our own country, received the patronage of the State until they were mature and strong. Yet it is not to be forgotten, but rather ever to be remembered, that there have been magnificent gifts by private persons for the sake of sound learning; still these, taken as a whole, have been given for specific purposes, and bound up by local interests to such an extent that no well-ordered system of higher education has resulted from them. The multitude of inferior colleges scattered all over the country, which have been planted by generous men, are examples of noble efforts begun, which no one came to continue; while Harvard

and Yale, and your own University, suggest what may be accomplished when private munificence comes to second the efforts of the community. I conclude, therefore, that the work of providing the means of education, within the proper field of academic learning, must be taken up by other than private hands; but to these private hands may very well be left the teaching of such practical applications as look to the advantages of trade. Private enterprise being inadequate to secure a proper cultivation of the field of learning, shall it be left to the Church? Many say yes. It will, however, be evident to any one who has considered the history of education in its relation to eclesiastical organizations, particularly the history of the transition from mediæval to modern learning, that the Church has not given and will not give equal and impartial treatment to the several departments of knowledge. It is liable to lay undue stress on metaphysical speculation, and to neglect or even discourage free investigation in the realm of natural phenomena.

In history it has a case to make out for itself, and by this is prevented from considering with impartial judgment the course of human events. Moreover, since it must rely ultimately on the liberality of private persons for its means, these means are likely to answer but poorly to the demand. If then, neither private persons nor the Church will give to education the patronage needed, we must look elsewhere for adequate support. The State, as organized society, not only may and can furnish the instruction demanded, but is also better adapted to this end than any other association; and consequently, if there is need of it, should furnish it. A confirmatory reason for the State's providing instruction, particularly in the lower grades, where it may be thought that private enterprise and the Church will meet the demand, is found in the undisputed right to education which every child has who is born in a civilized community, taken in connection with the fact that an important aim of the State is to secure to the people the enjoyment of their rights and liberties. If, then, parents, or any other power, refuse children the advantage of education which they might allow them to enjoy, the State may and must see to it that they have these advantages. And in order that it may be an efficient protector of rights in this regard, the State must not rely on other associations to furnish means of education, but must have them in its own control. But it is urged that the teaching of religion and morality are an essential part of the proper instruction of the schools, yet that they cannot be taught by the State, and, therefore, that its instruction must be incomplete, fragmentary, one-sided, and vicious. I will admit, if you please, with these objectors, that religion and morality fall properly within the scope of academic teaching, but having done this, I will affirm what they deny, that they may be taught by the State. And here I make the distinction that I have made already in all departments of learning, the distinction between principles and practical application. It is not beyond the limit of the field occupied by a university to examine the phenomena of religion that have appeared at every step in the history of humanity, and to trace these phenomena, if possible, up to some principle in human nature; in a word, to teach the science of religion, as one of the factors to be taken account of in the philosophy of history; but it is not the business of the schools to apply their teachings to the practical development, direction, and control of the religious sentiment as to the form of its expression. This is the business of the home and the Church. So it is with the teaching of morality. There are certain great fundamental principles of morals, or of the conduct of life, which

form a part of the universal moral code, and which must be accepted by every form of religion before it is entitled to the toleration of the State. The State is the supreme guardian of morality. There are certain great moral principles which it requires to be observed, and it may crush out any association, religious or other, that dares to violate them. These principles it not only may but must teach.

It has been often urged that the State may and should provide public instruction, because it tends to remove the ignorance of the lower classes, to diminish crime, to lessen the expenses of the public police, and to insure its own continued existence. However true this may be, there is a still higher consideration of interest. The State exists as a great moral organism, whose aim is the well-being of men, and as such we owe to it a duty higher than the duty to friend or family, and next to that we owe to God. Yet in these days of growing selfishness, men are liable to become unmindful of their obligations; but if they have received at the hands of the public those advantages by which their minds have been developed and their characters ennobled, they will be slow to forget their loyalty, and the State may continue to flourish, strong in the affections of intelligent and enlightened citizens.

The thanks of the Convention were tendered Prof. Moses, and he was requested to furnish his address to the Association for publication.

President Mann announced that a paper on School Hygiene, prepared for the Convention by Dr. H. M. Fiske, of San Francisco, would, on account of Dr. Fiske's inability to attend, be read by Mrs. A. L. Mann:

School Hygiene.

In the middle of the sixteenth century the Duke Derwentwater, then residing on his estates in the Isle of Wight, discovered that large numbers of sheep, which were annually pastured there, died from no apparent cause. Their range was an open glade, through which extended an arm of the sea. The pasturage was good, and Nature's resources for prolongation of life were munificent, still the animals died. Viewing the ground and its surroundings with suspicion, he made an investigation, and found that the poison was not in the feed, but in the water, which, on analysis, was found to contain in solution large quantities of bi-sulphate of iron and free sulphur, emanating from a spring in the neighborhood and from the outlets of vast tracts of marshy land which here had their entrance to the ocean. The springs and outlets were beyond the reach of the sheep, and in no way were they contaminated by the use of the water, their wants being supplied by small rivulets brought from the neighboring hills in wooden pipes for the purpose. On the river Clyde, in Scotland, and in Shropshire, in England, were once vast sandy wastes, for years unfit for man or beast. Their occupancy was given up to the use of tanneries and the manufacture of bog or pig iron, the materials used in the prosecution of these branches of industry seemingly protecting, to a certain extent, these artisans from the deadly miasm which every where abounded outside of the small realms used for these purposes. Vegetation and fertility throughout these tracts were unknown, and they were unwholesome beyond measure. The Ducal estates of Shropshire and the Ise of Man respectively bought the properties, and sought to improve them by means of levees and a system of dykes and ditches, by which the water of the Clyde and other small streams were alternately allowed to flow over the lands, or distributed to the higher portion by means of irrigating canals and flumes. Thus the impurities of the soil were made fertilizers, and the death-dealing properties of the gases thus arising were changed

into engines of elegance and beauty. The lands thus treated are now the most valuable in the kingdom. This was, in England, the incipiency of actions whose results were afterwards combined and embodied in what is now known as hygienic science. Two facts then presented themselves which for a long time set at naught the reasoning of scientists and humanitarians. Mysteries they were, which only the later days of science have been able to cope with and understand.

Underlying them lay the whole system of modern hygienic science. Why water should poison that was not drank or touched, or why emanations from soil that was not disturbed should be so destructive to human life, was beyond the comprehension of our fathers. Blood poisoning was unknown to the pathologists and humanitarians of that time ; but since it has attracted great attention from the health officers, the minute men of the different health organizations throughout the civilized world. In this busy utilitarian age as a subject of public interest it stands higher than any other with which the mind is called on to cope. Blood poisoning, then, may be produced by the inhalation or absorption of such agents as by their corrosive or poisonous action produce immediate death or gradual decay of tissues with which they are brought in contact.

We see many of these agents around us ; others are unseen ; but real and tangible, in accordance with the power and scope of their surroundings. In the school-house they present themselves in the closed doors and windows ; in the stifling heat and dense smoke emanating from broken or decayed stoves ; in unruly fire-places, imperfect flues, rotten or decaying planks or boards ; in the building itself, its location, drainage ; its elevation or depression ; in its sides, floors, doors, roof, we behold these terrible agents, ever at work doing their best or worst to pollute the atmosphere we breathe, the water we drink with effluvia which are detrimental to comfort and health ; laying the seeds of disease, which may not spring forth immediately, but planting themselves firmly in the tissues remain there a cankering sore—a darkened blight on the hopes and prospects of many a fair youth, which will tell in after years on his or her happiness and prosperity, and will repeat itself in their progeny a thousand fold. Thus, by repeating itself in the form of scrofula and diseased nervous action and depressed muscular tissue, it magnifies in the future generation the ten-fold evils of the present.

This is no overdrawn picture. The seeds of scrofula are capable of reproducing themselves in others, with whom they are brought in contact, more than a million times. A little headache or cold contracted to-day at that open window, may be the cause of meningitis or acute muscular inflammation, which will go on undiminished till the possessor is launched into the grave ; or it may assume the chronic form which will terminate in the decay and death of the vital forces after long years of suffering, and by propagation impose its unhappy and diseased peculiarities in others, perhaps yet unborn. These are some of the evils of neglected sanitary conditions in our school assemblages. To remedy these, to point out their fallacies, to show up many absurd observances and unhealthy conditions attendant on them, is the object of this paper.

Blood poisons introduced into the system in youth lay the foundation of diseases which, if they do not immediately destroy the structure, waste its energies and depress its mental powers. They are secret, often apparently inoffensive agents, but certain and deadly in their results. Sewer gas is very destructive, but none the less

deadly and destructive is the gas accumulating in the over-crowded school-room. Though not always stifling and destructive in its immediate, it is so in its continual, effects. Cephallalgia, obtuse vision, dull hearing, heavy eyelids, and nervous derangements, too often tell, for weeks, of the prolonged stay in the over-crowded school-room, the opera-house, the social hall, the theater. We see in the bloated face, the dull eye and haggard look, the benumbed expression, the habits of the tippler, drunkard, and debauchee; and do we not see in the wild look, the trembling limb, the shattered nerves, and incoherent expressions, the victims, nay, more than the victims, the slaves of those whose passions and prejudices would give and lose all rather than take a rational look at facts and thoroughly ventilate their own domiciles, and thus compel themselves and families to partake of the beauties which Nature has so lavishly provided for the health of man and his family? Does not the capitalist know when he builds his house and stable that his cattle and his children are all at the mercy of the architect, and that as he disposeth, so will come to him of life or limb? Are not a majority of our school-houses worse arranged than our dwellings? Is not the shading and light greatly at fault? Is the cubic air ordinance, ordained by God for the benefit of his children, strictly obeyed, or in many cases even an attempt at obedience shown? Are not the drains faulty, the cisterns foul and unclean? Are the traps in good order, or the plumbing such as would be dictated by the laws of cleanliness and health?

The continued crossing and re-crossing of the rays of light is not only detrimental, but positively destructive to the healthy action of the optic nerve and cerebral nerve centers. The human eye is a vast system or net-work of concave and convex mirrors. Aqueous humors are there translucent and transparent to a high degree; so high are they in reflective powers, that not the twenty thousandth part of an inch is allowable in their transcensions of what is true and accurate in nature. They fill the soul with the beauty of their efflorescence, and the height of their divinity is manifest in the numberless colors thrown off and shown on the retina, in the varied forms of reflection and arborescence. Teachers should always guard this organ of their pupils with jealous care. It is under their supervision when in its infancy. In the incipiency of its work, its greatness and power, the eye is capable of reflecting one millionth time its size and capacity. Place the eye of a needle in proper position, cover it with a microscope, and it will show the capacious jaws of an alligator, or the open roadstead of an ocean highway. Reverse this picture, and you have the human eye with all its capacities for self-government increased and multiplied in geometrical ratio.

There is but a span between man and death. So there is but a momentary space between this highly delicate organ and the death, or impairment, of its high vitality. Prepare a thin piece of glass, cover it with a thin vapor of ammonia, and on this sprinkle a few grains of black pepper. The pepper will seem larger and denser in accordance with the range of the eye from fixed distances. Now, take the shell and immerse it in the depths of a microscopical object glass, and you will see all the beauties of the rainbow intensified to a wonderful degree. So the eye, its varied appendages, its depths and intricacies, its glorious retinue of nerves and sensitive reflecting membranes, all tell a continuous tale of ingenuity, perseverance, and assiduity in the perfection of the human race. The human eye and its appendages show the wonderful assimilation and fraternization of the different parts of the human system. The least derangement of any

organ, no matter how remote, is sure to repeat itself a thousand fold in the eye, its integuments or solidities.

"There is a land where angels dare not tread," was sung long ago. And its refrain has been echoed and re-echoed many thousand times since, by the oculists of past times. But it remains for the school architecture of the present day to set at naught principles which were well established by our fathers, and which centuries since received the sanction of such minds as Sir Christopher Wren, Sanovola, and other architects of similar renown. It has been a well-established principle for ages, that no light should fall obliquely across a direct range of vision, especially in rooms devoted to study or mental exercise. For centuries books have been written and anathemas hurled on those who violated this law. And yet to-day its observance is almost unknown. And buildings are erected and lauded as fine specimens of architectural skill and beauty, that in the days of the masters would have been leveled, as unfit for human habitation, much less as dormitories to train young minds in the ways of usefulness and peace. The constant desire to eat, drink, and sleep at unreasonable hours, does much towards disturbing the visual functions. The effects of this pernicious habit are constantly noted among the inmates of our schools, especially girls ; amid the nuns in their cloisters, the preachers in their pulpits. Our universities and larger school dormitories are never free from their baneful effects. Their name is legion—*these enemies of the eye.*

The organs of sight are sympathetically connected with all other organs of the body, and when waste is laid at their doors, all other organs suffer in proportion. Then let the appendages of the meals always be light. Let the hours of study be so arranged that no ingress or egress shall be had for these ailments of the body. Let all be tenacious of the honors they hold, and never be tempted to do aught that will lead them astray. Let the light in the rooms so shine that it will strike healthy organisms, and not those weakened by inanition or decay, from the unnecessary and hurtful imposition of heterogeneous masses of food, which, in the stomach, will cause a delay or degeneration of the healthy action of the tissues. By a simple decay of the matter introduced, sickness or paralyzation of the mental or physical being is sure to result. The eye must be encouraged to do its full work, and in no way can it be better done than by an invigoration of the vital forces to such an extent as will render it active, vigilant, and an intelligent reciprocator of all the influences brought to bear for its nourishment and strength. As teachers, it is your duty to see that your pupils are governed by such hygienic laws as will enable them to develop their being to its highest altitude.

See to it, teachers, that no powers are lacking on your side to bring out and develop that most beautiful and glorious of all structures, the human mind. The beauty of the universe is manifest in the young minds under your charge. See to it that they develop rightly ; by no undue vigorous growth on one side, to the detriment or estrangement of the other. Aristotle says there is a power above the sun, as their is a glory above the moon. So in you, teachers, rests much of the future of the boy or girl under your charge. Blindness is often of slow growth. Cataracts are often sleepy things, crawling over those spheroid cavities with the capacity of snails, yet they are vigorous and tenacious of life. Color blindness often comes on slowly, and a person may have it for years without noticing its evil effects, yet often it is a prognosticator of higher and deadlier developments.

There is a chasm in yonder mountain, known as the Lover's Leap ; 'tis deep,

dark, awful. In its breadth but a span, but when we seek to penetrate its dark abyss, the mind and body both recoil at its fathomlessness. So of the human eye. Its secrets are many ; its abysses are terrible. Guard well its portals ; see that no enemy lurks there ; no extraneous causes surround which would impair its beauty, lessen its influence, or destroy its vitality ; for of it and through it are those things seen and apprehended which make life desirable and happy.

Blood poisoning can be carried on insensibly through the exhaust-pipes of the system as well as by assimilation and absorption. Berlin has eighty thousand emunctories, or exhaust-pipes, by which her offal and decaying matters are carried into the river Spree ; and so admirably arranged are they, so great the engineering skill exhibited, that the least derangement in one, no matter how remote, is immediately registered in all the others. Thus with the human system ; with her ten thousand emunctories in all parts of the body, one cannot be clogged or its action deranged without serious consequences to the whole.

Many of our school-houses are erected apparently without regard to any sanitary conditions whatsoever. In many of our large cities the great disregard which many of their designers and builders have had for the public health and comfort is certainly very refreshing, in a Pickwickian sense. One in San Francisco, where nearly seven hundred children are daily assembled, is a low, one-story structure, sitting fairly on the sand, or at least but few inches above it ; the ceilings low ; the floors damp ; rooms badly lighted, with a musty, offensive odor constantly pervading the structure—rickety, ill-shapen, and worthless in every sense. During the last quarter of the past term more than forty cases of severe disease originated in it. Inflammation of the bowels, rheumatism, neuralgia, with all their attendant train of evils, were more or less present at all times. And this abomination is permitted to exist simply for the want of funds to erect a more desirable structure. Physicians have repeatedly protested against its use, and the public are well aware of its unwholesomeness yet the colony of young children are still kept there to poison their systems, and many to bear with them through life mementos of it in the shape of chronic ailments that will ever testify to the negligence, penuriousness, and criminality of the authorities in permitting its occupancy.

Berlin, with its thousands of manufactories, its gas-lighted streets, its manifold hotels, theaters, work-shops, is but our school system enlarged and amplified. Close her emunctories and disease and death will follow ; the city would cease to exist, destroyed by its own rottenness. So of our school system. Hygiene must be obeyed ; her laws are rigid, inflexible, and no disunion or disruption of the tie which binds her to the human family is allowable. Death or perishable material will present itself on the surface, and work its decaying and fermenting matter into the whole structure, till the whole mass is involved, a rotten, corrupt thing. School-houses must be eligible as places of learning. Before they can become of full value to the community, they must enlarge their scope of usefulness by becoming sanitariums of health, life-giving in all their actions and impulses. The one hope for our schools is that their managers, their friends, and workers, will see that their life-giving impulses are not hindered or delayed by extraneous causes or corroding influences.

School-houses should always be on slightly elevated positions, not too much exposed either to the sun, storm, or wind, but gently sheltered where the extremes in temperature never meet. The hot rays

of a midsummer sun, or the cold, cheerless winds of an Eastern December morn striking the building without any extenuating circumstances, without any shelter or any arrangement by which their pitiless force can be mitigated, are evils of great magnitude; and many are the young lives that have fallen victims to the misguided zeal of the fathers in assisting the young ideas to climb, by placing their school domiciles as near the upper regions as the top of the highest hills would permit. Sheltered places are desirable not only on account of the moderate temperature enjoyed, as well as the sanitary conditions generally found, especially in those cold sections of country where for six months winter is the normal state.

Our mild, half-tropical climate is more noted for the development of that type of intellectuality which predominates in the Italian peninsula. School-houses should be models of architecture in order to please the eye and adorn the taste of the neophites gathered there. They should not be elaborate in their design or costly in expenditure, but in that pleasing style of art which mediates between the cottage on the one hand and the elaborate villa on the other. If possible all class-rooms should be on the ground floor, frequent ascending and descending of street-stairs being very injurious to both teacher and pupil. School-houses and sites should never in the least be open to the want of drainage on the one part or the deficiency of sewerage on the other. Bad sewerage in a school-house is like a bad egg amid a conglomeration of articles for sale, a contamination, not an ornament. School-houses in the country are too often neglected in their sanitary surroundings, often filthy and unwholesome, often without paint or portico; the rough winds and storms of winter assail them, the dews and showers of spring degenerate and mildew them. Our long, dry summers derange their doors, dilapidate their windows, and encompass them with a degree of heat unpleasant to bear, and making unhealthy their sanitary conditions. Winters are winters the world over, whether of severe exposure or semi-tropical in their nature. Still they are winters, and liable to extremes of heat and cold, wet and dry, and as such their action on buildings is injurious, and the greatest care is necessary to prevent them from becoming forerunners of disease and insipid mental action.

In a sanitary point of view dress is a matter of consideration. No thick outer clothing should be worn in the school-room unless it be for protection in diseased conditions. It should always be removed on entrance. Sanitary conditions are always promoted by cleanliness; it is a cardinal virtue, and there is often more value in a clean apron and shirt in the incentive they give to study than in the old-fashioned virtues of the birch; coercion ceases to be a virtue and becomes a crime when it reaches the object solely through fear, and without just appreciation of the qualities and stimulus of unaided force.

Dress is a great promoter of health as well as of disease, and is often the cause of the insalubrity of the person. Cleanliness and warmth are co-equals in their management of the hygienic condition of school assemblages. They savor rather of force than coercion, but they are of that character of force which emulates good things, desires good things, and in the end has good things. Good things are forerunners of that condition of the mind which aspires to higher and holier pursuits in life, a higher standard in the school-classes, a higher, purer, and nobler mental state. Such is the nature and obligation of cleanliness—to education and refinement—and such is the nature and character of hygienic measures in the association and purposes necessary for the

proper development of the mental and physical powers during school life.

At a quarter to 10 o'clock the Convention adjourned.

GRAMMAR SCHOOL SECTION.

Grammar Section met at 9:30 A. M., and agreed, at the suggestion of the Chairman, Prof. A. H. McDonald, that fifteen minutes should be allowed each person opening a subject, and five minutes to each subsequent speaker.

Mr. Woodward was then invited to introduce the following subject: "The Best Course of Study for Grammar Schools." He believes geography to be too far taught; in history too much is given, and it should be given in different form; physiology should be given much more time than now; reading, writing, and arithmetic are conceded.

Prof. Allen has computed that on the average a child in California receives a little less than thirty-five months' instruction from the public school.

Mr. Hill, of Marysville, thought we might save much time by discarding the technicalities of grammar, and using only the practical; morals and manners should be taught and never omitted.

Miss McMenomy believed also in discarding technicalities, and instead thereof, to spend more time in practical analysis and synthesis.

Prof. McDonald thought many things in our present course should be eliminated and others inserted. More physiology should be taught and more time should be given to teaching reading.

Mr. Ruddock suggested that too much is attempted in our course of study; for instance, in grammar, or in algebra, when children are unable to do interest. Give them a little rest. Impossible to adopt any formula for teaching manners and morals. Common sense should be the guide.

The Chairman asked, "How much arithmetic should be taught in the grammar school?"

Mr. Garlick said we try to teach too much. Too much arithmetic for instance, as exchange, alligation, etc., etc. In regard to grammar, he said, children should be taught to write correctly, to speak correctly, and that analysis and parsing are of secondary importance.

Mr Ruddock said that there should be some point in the grammar school course where pupils can be "turned out."

Dr. Carr said that considerable routine work might be eliminated. The time should be shortened, so that an elementary knowledge of the natural sciences might be taught. Children should be taught a few of such things as have a practical application; for instance, a knowledge of hygiene; of the air; of the common things around them. Our leading educational idea is too much like a pyramid inverted. Should it not be like a pyramid in its proper position? He was not in favor of giving a thorough scientific education in our common schools, but of giving an elementary knowledge.

Prof. Allen moved that the subject matter of a proper course of study for grammar schools be referred to a committee of five to report a resolution to the general Association for action. Carried.

The following were appointed: Allen, Hill, Lyser, Brown, and Miss McMenomy.

Mr. Hill opened on the subject of monthly examinations. He advocated a written review of the month's work; not a lengthy system of examination, but a few general questions, that can be briefly answered, but not too briefly. He considered some system of written examinations as *essential*. "A little learning is *not* a dangerous thing, if it is good learning. The more poor learning one acquires, the worse."

Mr. Bloomer advocated weekly examinations. This avoids a too great accumulation of work. Pupils should correct each others' papers. This has been found successful by him. Pupils are made critical and precise. They do a great deal of work.

Prof. Allen said that he desired to call attention to a few abuses of examinations. Where examinations are known beforehand, pupils frequently cram the night before. In this way, the examinations show nothing. Second, there are often too many examinations in one day. One a day is sufficient. Poor penmanship is often the result of too many examinations in one day. Third, examinations are too long. They give too much work. Teachers get in more than can be digested. Remedies: "Never ask a question you know pupils all know. Put in things that test the strength and knowledge of the pupil." Results are altogether too high. This is a deceit practiced on our pupils.

Mr. McDonald said he had adopted the fol-

lowing method: The examinations are weekly. Instead of being all written, they are partly oral.

Mr. Woodward spoke in favor of the written exercises.

Prof. Allen recommends that pupils, with the teacher, grade the examination papers, but would not trust them to do the work wholly alone.

Messrs. Woodward, Hill, and Bloomer thought they might be trusted to do so.

The Section then adjourned.

SUPERINTENDENTS' SECTION.

THURSDAY, 10 A. M.

Meeting called to order by the Chairman, F. M. Campbell.

Report of Committee on Form of Blank Reports on condition of Schools, efficiency of Teachers, etc., for use of county superintendents in making school visits, was presented. Motion prevailed to receive the report, and an earnest discussion arose in reference to the best form of blanks.

Ruddock, Augustine, Pendergast, Davis, and others engaged in the discussion. Davis suggested using short-hand or hieroglyphic signs for making an accurate record. On motion, report of committee referred back, and Dr. Carr added to the committee, said committee to have power to act in the interim, and adopt a system of records.

F. M. Campbell then read letters from absent superintendents, which embodied regrets for inability to attend, and suggestions in regard to school supervision.

Ruddock, Davis, and Dr. Carr expressed views on the present mode of apportioning school funds. Dr. Carr thought that apportionment of school funds on the basis of attendance would perhaps be more equable. He deprecated the abolition of the office of county superintendent, as has been done in some counties.

Ruddock moved that a committee of three be appointed to report on best mode of apportioning school funds, said committee to report at the next annual meeting of the association. Carr, Campbell, and Mann were appointed on the committee.

Discussion on "Course of Study," by Ruddock, Pendergast, Davis, Gilson, and Robinson, of Stanislaus, then followed.

Also a discussion was indulged in on grading of schools.

Dr. Carr thought that great care should be exercised in renewing county certificates, since they are now equivalent to life diplomas.

The following resolutions were passed:

Resolved, That we request the State Board of Education to prepare a simple manual of the instruction to be given in the district schools of this State, for the use of inexperienced teachers.

Resolved, That as county superintendents now assembled, we most urgently request all county superintendents in this State to be present at the next annual session of this Association, and we promise our individual and combined influence to make the Superintendents' Section a prominent and useful feature of the Association.

Resolved, That county superintendents be requested to use their best endeavors to circulate and make known to teachers and school officers in their respective counties the Constitution of the State Teachers' Association, that its objects and purposes may be generally known, and that signatures of persons whom they know to be worthy and qualified be obtained.

Resolved, That in the sense of the members of the Superintendents' Section of the Association, we recommend that superintendents throughout the State be particularly careful that no evasion of the law occur in regard to that portion confining teachers holding second and third grade certificates to schools of corresponding grades.

Resolved, That the thanks of this body be and are hereby tendered to our faithful and worthy Chairman, F. M. Campbell, and to our efficient and obliging Secretary, J. C. Gilson, for their faithfulness and courtesy.

PRIMARY SCHOOL SECTION.

This section met at 10 A. M. Mrs. Jeanne C. Carr presided.

Mrs. Carr spoke at length, and to the general satisfaction of the assembled teachers, on "The Physiological Education of Children." She advocated the education of hand as well as head. A general discussion on primary education and the Kindergarten followed, which was participated in by Superintendent Mann, Miss Marwedel, Mr. Crowhurst, and others. Mr. Crowhurst, of Contra Costa, was appointed to draft a resolution on Kindergarten schools, and the following, presented by him, was unanimously adopted:

WHEREAS, The Kindergarten system of instruction has already been in use in a number of our larger cities, including the city of St. Louis, where there are fifty Kindergartens organized and sustained by the city school authorities, and,

WHEREAS, It has revolutionized the training of children in European countries, where adopted, preparing them for the more active duties of life, and cultivating in them the higher principles of a true humanity, therefore, be it

Resolved, That the State authorities be requested to carefully examine the matter, and, if

expedient, to make legal provision for the early introduction of the system into the schools of California, or, at least, to introduce its leading features into our present primary grades, and to combine and incorporate its principles with our Cosmopolitan system of California instruction.

AFTERNOON SESSION.

At 2 P. M. the Association again convened in general session. At the request of PROF. SCHOOF, of San Francisco, his paper on drawing was read by the Secretary, Albert Lyser.

Drawing in Public Schools.

Drawing will never be able to conquer a place—and successfully maintain it—in our public schools, until it has been proven to the satisfaction of all, in the first place, that practical results are to be derived from its study; in the second, apart from the practical results obtained, that it is a valuable educational factor; in the third, that it can, even in the limited time allowable for its study in the public schools, be carried to a successful end.

In the following essay we shall endeavor to show that, properly taught, it meets all these demands.

The first practical result to be derived from its study is claimed to be a decided improvement of industrial manufacture by educating skilled designers, and a public able to discriminate between the beautiful and the inartistic.

For, drawing when taught to every boy and girl in the State, cannot fail to reach those in whom talent lies dormant. But if drawing were taught in all the schools, all the children would be brought face to face with beautiful forms and their delineation; talent, wherever it could show itself, would be taken care of, cultivated and raised to its utmost extent. Thus we should be able to educate at home designers who are now imported from abroad; we should be able to place our own citizens in situations now held by foreigners. We should be able to execute at home designs which now at a high figure are bought abroad. This alone might compensate us for all the outlay we make—for all the trouble we take. But still this is not the only point, and not even one of the first importance. The education of the great mass of the people gained by a universal instruction in drawing is the chief point. For men, once taught to appreciate the beauty of form, will never allow an object that does not show form they regard as beautiful to enter their households, will never purchase objects that do not come up to their standard of beauty, that do not satisfy their tastes, thus compelling manufacturers to improve their manufactures, to give them a form consistent with the ideas of beauty held by their purchasers.

It is easy to see that in this manner industrial art will be improved, that the competition existing between manufacturers, spurred by the cultivated taste of their patrons, will compel continuous improvement.

Before we procecd, let me ask you a question. Did you ever meet a person, who, with a few strokes of the pen, drew any object for your amusement, to illustrate, perhaps, something he intended to explain to you? I am sure this man, had he been given the benefit of education in industrial design, such as I wish every child in the country to receive, might now be an expert designer, at work in some factory, imprinting upon all the objects emanating from it, the traces of his genius and his skill, thereby transmitting to posterity the talent inherent in him, and which now is lost forever.

How quickly, how thoroughly the industry of a nation is improved and developed by a universal instruction in drawing is exemplified by England, which at her first Exhibition was brought face to face with the fact that, in the industrial arts, she was far behind most of the European nations. She then decided on teaching industrial drawing in all her public schools,

established the museum of Kensington bought models and patterns abroad to serve as guides for instruction; in short, did everything we now wish to see done with us; and what is the result? England is now second to none of the other nations, and in some departments defies competition.

And how is it with the United States—with California? Go to the different shops and inquire what part of the world their skilled labor hails from: ask how many of them are born in America! You will be astonished at the small number of the latter. Ask where the designs are made from which your furniture has been manufactured; which serve as patterns for your carpets, your articles of *virtu*. The answer will be, they are made abroad, or designed by men very few of whom have been trained in this country. And why this abnormal state of affairs, after a hundred years' time has been given us to develope our own resources in this field? Because we have failed to teach designing, to foster the mother of all industry—the industrial arts. We are the greatest inventors; we are the first in enterprise—why not in the industrial arts? Why can we not here, also, excel all other nations?

We have admitted that drawing, in order to find an uncontested place in our public schools, must be a strong educational factor; that is, it must, besides cultivating the hand and the eye, which it certainly does, also discipline the mind; it must rouse, stimulate, and educate the inventive and reasoning faculties of the pupil; it must teach him to observe, compare, criticise, and judge his surroundings.

We claim that drawing does all this; we claim, furthermore, that it creates and nourishes accuracy and industry by employing the child in a pleasing manner.

Work, in order to be agreeable and profitable to the child, must be executed with the utmost neatness, exactness, and accuracy; consequently these qualities are involuntarily developed, and through the constant association and intercourse with beautiful forms, the mind and the eye are alike cultivated.

One branch of drawing which is of the greatest importance, namely, designing, fills, as will be shown, all these conditions. For in this study, the child, being furnished with a simple form, is taught, how by skilful and accurate and regular repetition of the same, a complicated design may be made. This course forces the child to bring all his innate reasoning and intuitive faculties into play, thus rousing, stimulating, and, therefore, strengthing them. If these are found insufficient, the child will either naturally, or impelled by his teacher, look around him to find objects that may be used for his purpose; thus he is forced to observe closely, to analyze the forms seen, to reason if and how he can use them, to discover the changes that have to be made, and at last to apply the forms for his particular purpose.

This process of reasoning, this way of teaching designing, when commenced with very young children, by giving them the simplest imaginable objects, straight lines at first, more difficult and complicated ones as they advance, cannot but bring forth good results; its influence as an educational factor cannot be doubted. We may say it will be to the child in the grammar schools what geometry is to the pupils of the high schools, one of the leading educational factors.

For geometry gives the pupils a few single axioms to start from, shows him how, with their help, and by strict and sound reasoning, problems, at first easy, may be solved, how again the knowledge thus acquired may be used to solve other and harder problems.

It is the same in designing. A few fixed laws, governing the repetition and

arrangement of all the forms in designing, being explained, the child is given a simple form with which to work; new forms are added, to be treated in the same manner, either alone or in combination with the former. This, together with the fact that designs are always made in geometrical forms, which must be studied previous to taking up designing, will be sufficient to show the relations existing between designing and geometry as educational helps.

In drawing from the solid, children will be more fully taught to analyze what they see, in order to enable them to draw the different parts of the forms seen in their proper order; to deduce, so to say, at first appearances, from facts in simple objects known to them, and thus to be trained to deduce later on facts, from appearances, in objects not familiar to them. It is astonishing how very few men are able to give a precise account of what they have seen. It is simply because they have never been trained to see distinctly; that is, to call to their mind, while looking at objects, their precise form; they only see with the eye, not with the mind.

Superintendent Philbrick, of the Boston schools, in speaking of the importance of this branch of study, says: "It is now understood by well-informed persons that drawing is an essential branch of education, and that it should be taught to every child who is taught the three R's. It is indispensable as an element of general education, and it lies at the foundation of all technical education. It is difficult to conceive of any human occupation to which education in this branch would not prove beneficial. Everybody needs a well-trained eye and a well-trained hand. Drawing is the proper means of imparting this needed training. Drawing, properly taught, is calculated, even more than vocal music, perhaps, to facilitate instruction in all other branches of education."

That drawing can be carried to a successful end, even in the limited time allowed for it in the course of study in our public schools, will appear from the following:

The course of study in drawing must be divided into three distinct parts: First, primary course; second, grammar; third, high school and evening school course.

The first two are intended to create in every child an appreciation of all the beautiful in his surroundings; to enable him to determine between the beautiful and homely; to enable every girl in after life to adorn the home of her husband and children by harmonious arrangement of even the most insignificant surroundings of life. I venture to say that there are few persons who have not an innate sense of appreciation for the beautiful, which is frequently lost for want of a proper training and cultivation. In women especially this sense is more or less largely developed. How important, therefore, that our daughters, who are destined to become the mothers of the next generation, should early be taught the beautiful and important art of drawing and designing. The plainest home can be rendered charming and attractive with little or no expense when presided over by the ingenious exercise of feminine taste and refinement.

Parents, and particularly mothers with cultivated eye and taste, involuntarily influence and actually lead their children to observe, appreciate, and criticise hidden beauties in their immediate surroundings, as well as in nature generally. Who can calculate the influence which such training may have on the general development of the mind or future career of a child?

Happening to speak on this matter to one of our ablest principals, and finding him of the same opinion as myself, I asked him to give me his views in writing, and he very kindly furnished me the following:

"The study of drawing should be made compulsory for normal school students

and others intending to adopt teaching as their profession.

"1st. Because, unlike music, it is possible for every one who can learn writing to learn drawing, at least with ruler and compass. Hence, it is possible for all teachers to acquire the art.

"2d. Because there is no person who would not, at some time or other, derive benefit or pleasure from the ability to draw and to understand the drawings of others. Consequently, if the time and money spent are not incommensurate with the profit derived, drawing should be made a general study.

"3d. Because it is impossible, except in large cities, to employ special drawing teachers, and even there, to have the work well performed, the general teachers must assist. Hence, in order to supply equal opportunities to all public school children in this respect; in order to develop the genius and gather the harvest of inventive talent the whole land through; in order to have every embryo inventor able, as thousands are not, to transfer his mechanical or architectural ideas to paper, all general teachers must make drawing a study, so that they in turn may spread its principles and systems broadcast. Apart from these reasons, which would apply to any educational period, let us remember that, in the present age most emphatically, "time is money"; that we have more commerce, more travel, more hurry, quicker returns, and lighter profits, even quicker wars and more people killed than ever before; that the whole desire seems to be more, *more*, MORE—quicker, *quicker*, QUICKER; that the teachers and the machinists are always the first persons called on to 'keep up with the times'; in fact, 'to make the pace'; that quick travel, quick returns, and supremacy in commerce and in war, which constitute the power of a nation, all call for improved time and labor-saving, and death-dealing machinery. The times call for more and better-trained machinists and mechanics. The demand must be supplied. The school must train for the shop. Industrial drawing must increase in importance. A few special teachers cannot possibly meet the rapidly increasing demand for instruction in this branch, and teachers at large must be compelled to prepare for the emergency."

General instruction in drawing should consist in:

(1.) Free-hand drawing on slates and paper.

(*a*) From copies, to train the eye in judging distances and curves, the hand to execute what the eye sees.

(*b*) From dictation, to teach the power and meaning of technical terms, rapid execution of ideas given by words.

(*c*) From memory, to impress on the mind of the pupil the leading forms of ornamental drawing, and their proportions.

(*d*) From objects, to teach how to "see in space," to compare between the forms of the object itself and its pictorial representation.

(2.) Blackboard drawing, to teach enlargement, how to judge greater distances than is possible on either slate or paper, and to give more freedom to the hand.

(3.) Designing, to cultivate the taste, teach accuracy, stimulate the reasoning and inventive faculties, and give practical application to the knowledge and skill acquired in free-hand and geometrical drawing.

(4.) Geometrical and elementary architectural, and machine drawing, to educate for the shop and the practical pursuits of life.

Before closing, allow me to advocate one kind of drawing, that has never been practiced in our schools, and, in my opinion, is of the greatest importance. I refer to the drawing of leaves and flowers from nature for ornamental purposes. Adhering to the principle, that it is better

to let children draw conventional forms with their strictly defined lines and curves, before allowing them to copy nature with all her irregularities and undefined curves. I am far from excluding the latter entirely from the course of instruction, but hold that both taught in close succession, and so as to show how the conventional form was obtained from the natural one, will be productive of better, or, at least, more original and varied designs. I *know* that true art consists in idealizing, not in copying the forms of nature; but I know just as well that nobody unacquainted with these forms can attempt to do it successfully. I know that to give to a child forms, which only the educated eye can recognize as representations of natural objects, means to deaden the child's interest instead of arousing it. But if the child is taught how, with a few changes, any natural form may be transformed into a conventional one, his interest will be awakened, as he will consider these forms his own, the work of his own hand.

G. Schreiber, an able teacher and author of several works on industrial drawing, who advocates a careful study of natural leaves and flowers, even by young children, says: "Although ornamentation has neither begun nor contented itself with the mere copying of plants and their different parts, it cannot be denied that the most important works of ornament and decoration could only be produced after a deep and intimate inspection and study of nature."

Owen Jones, in his excellent "Grammar of Ornament," says: "Who, then, will dare say that there is nothing left for us but to copy the five or seven-lobed flowers of the thirteenth century; the honeysuckle of the Greeks, or the acanthus of the Romans; that this alone can produce art? Is nature then so tired? See how various the forms, and how unvarying the principles. We feel persuaded that there is yet a future open to us; we have but to arouse from our slumbers. The Creator has not made all things beautiful, that we should thus set a limit to our admiration; on the contrary, as all his works are offered for our enjoyment, so are they offered for our study. They are there to awaken a natural instinct implanted in us, a desire to emulate, in the works of our hands, the order, the symmetry, the grace, the fitness, which the Creator has sown broadcast over the earth."

In order to emphasize still more the necessity of a thorough instruction in drawing, I take refuge in the words of far abler writers than I am, of men of long experience and unquestionable authority in all educational matters. The Hon. J. Denman, our former Superintendent, in his report of 1875, says: "We are engaged in building up a mighty city, which is destined not only to be the center of commerce and trade, but also the metropolis of mechanical arts and industrial enterprises upon the Pacific shores. We should, therefore, lay deep the foundation of our system of education. We should be in consonance with the progressive spirit of other cities and countries, in providing the means of technical instruction for the youth of our public schools. For we find those cities which are foremost in the production of fabrics of elegance and beautiful designs, and whose works of art find a ready sale in every country of the civilized globe, are not those in which the elements of art alone have received attention, but those whose inhabitants breathe at every turn an atmosphere of art, so that the tastes and whole mental nature of the people have been shaped, in a large degree, by its influence. It is true that this culture and education cannot be acquired without some cost to the city, but the expense will be trifling compared with the great good to be accomplished."

Mr. Philbrick, Superintendent of the Boston schools, uses the following language:

"When drawing is properly understood and properly taught, it will be acknowledged by every enlightened mind to be an indispensable element in the education of every human being, whatever may be his destination in life. Here, general education and technical education coincide. The childs needs drawing equally well, whether he is destined for a course of liberal culture or any industrial pursuit."

At the conclusion of this paper, Miss Emma Marwedel, the well-known Kindergartener, now of Oakland, was introduced, and read the following paper on the subject:

Fredriech Froebel and His Educational System.

I. FROEBEL AND HIS WORKS IN GENERAL.

Froebel was born on the 21st of April, 1782, at Oberweissback, Thuringia. His own childhood was left bare of any motherly sympathy, his mother dying when he was a baby. The want of love and tenderness seemed to have deepened a rich inward life of ideal and harmonious feelings and a most painful sensitiveness for the discords of the world.

He was merely a baby, when one of his brothers coming home in a vacation, and deeply pitying the much neglected child, won his confidence. Among several questions which burst out from its little oppressed mind was this: why is it that God did not make all people men, or all women, so that there would be no quarreling.

To divert his young mind from the problem of human discord, his brother sought to comfort him by showing him the process of vegetation, the compensating nature of imperfection in male and female flowers, and how thoroughly the principles of growth and harmonies of beauty and use were created out of the connection of opposites. Froebel said, in adverting to this, that it became the nucleus of all his later thoughts

It was in fact, as Jean Paul says, "The starting-point of his inner development." "Fruhl knoten der innerin entwicklung." But his mind was still filled with the discord of humanity. The first day of his being brought to school, then ten years of age, his master gave a practical sermon on the text, "Seek first the kingdom of heaven and its righteousness, and all things shall be added unto you." This was a new flash of light to him, and never lost he the clue of this law bringing happiness and harmony to mankind symbolized by the harmony in plants. He called the world of vegetation his most superior instructor—his life-giving inspiration. From this department of nature he almost extracted his phraseology. This superior child grew, grew into one of the strongest, most self-denying characters, and when requested to take charge of the education of the son of the Duke of Meiningen he refused to do it. He refused it on the ground that it was impossible to give a sound intellectual education to a child who had not a true moral development, which moral development was impossible to be received by a child who was separated from his equals and led to imagine himself as being of a superior nature. Froebel was then in great poverty, but nothing could ever induce him to sacrifice his opinion of right for personal advantages, and so the Duke sent his son to a public gymnasium.

Becoming aware that he was born to be a teacher, he prepared himself most carefully for his office. Going through the general course of studies at the universities in Jena, Gottingen, and Berlin, he made botany, geology, mineralogy, architecture, and surveying specialties to fit him for his great mission, as he called it. Afterwards, two years were spent with Pestalozzi, at Yverdun. He even entered the war with the special view of becoming a teacher, saying: I had no fatherland

myself, yet it was hardly possible for me to conceive how any young man, capable of bearing arms, would think of becoming an educator of children whose country he would not defend with his blood or life.

His philosophical theories are established upon a profound religious basis. They are, according to his character, "crystallized ethics."

He was not a writer. We do not find a continued string of pearls of clear logical definitions on education, such as are used by Herbert Spencer. Froebel was greatly influenced by the intoxicating victory consequent upon the emancipation of Germany from the French yoke under Napoleon the First, therefore his style bore the type of that time.

His writings in periodicals, letters, mutual conversations, and unfinished manuscripts have been collected and arranged by seven distinguished writers of our time. The most known are Frau Baroness von Mahrenholtz-Bulow, the editor of the first educational journal, *Die Rheinishen Erziehungsblätter*, Wichard Lange Hermann Poeschs, Professor of the Berlin University. He was highly esteemed among his professional colleagues; invited to attend a general teachers' association, held at Jena; the whole assembly arose at his appearance. He was honored with the title of Doctor of Philosophy from several universities. He opened his first educational institute in the year of 1816, which was transferred the next year to Kaelhan, where it is still one of the largest and best reputed educational institutions of Germany. The pupils receive college instruction, and are there prepared for entering the universities. His "developing method," "Die Entwickelude Methode" came before the idea of the Kindergarten entered his mind.

But in spite of all this, his powers are not illustrated in words. He is one of those exceptional human beings who have to be recognized in their works. There his power is great. It is great through its utmost minuteness, delicacy, and practicability. His motherly instincts wove a filagree-like network of tunes, songs, and plays full of order, beauty, love, and joy to suit and fit earth's most beautiful treasures, our children, even our babies sleeping in the cradle.

This filagree-like light and flexible network embraces with its silvery thread all the stern principles of Rousseau's activities for individual rights, Pestalozzi's activities for work and observation, even Spencer's activities. It is strange that Mr. Spencer never mentions Froebel's name, though all his own philosophical principles really refer to Froebel's system. It is still more strange as Joseph Payne, Professor of the College of Preceptors at London, lectured for his class on Froebel's system before Spencer's book on education appeared.

This network referred to embraces all the human activities which, according to Spencer, are, "1st. Those which directly minister to self-preservation; 2d. Those which, by securing the necessaries of life, indirectly minister to self-preservation; 3rd. Those which have for their end the rearing and discipline of offspring; 4th. Those which are involved in the maintenance of proper social relations; 5th. Those making up the leisure part of life, or are devoted to the gratification of the tastes and feelings."

It was in the above-mentioned war that two students, W. Middendorff and H. Langethal, formed a friendship with Froebel. A friendship in its highest ideal sense such as lasts forever, uniting efforts, fate, joy, hope, strength from the blind enthusiasm of youth, through a long life of hard work and self-denial; knowing only one head, one heart, for one noble work.

Such friendship we do often find in the Teutonic race. It seems like an echo

from the old dark green forest of centuries passed by, as a remnant of our old legends, kept as a ruin telling of a devotion and love for which our busy, hurrying time leaves neither space nor rest.

These three men joined their educational labors. Besides the mother institution at Kaelhan (which is still in operation under a younger co-worker, H. Barop), they established similar ones at Helba, Willisau, Wartensee, and Burgdorf. Langethal and Middendorf married nieces of Froebel, who himself married a very distinguished lady of Berlin. Though morally successful in their work, there was sometimes more than mere poverty. The bread was often divided by a chalk-line to mark the amount which could be eaten each day. One best coat had to serve for all. Middendorff went to Switzerland because unable to ride; Barop left his wife for four years, not seeing her or a child born after his departure during that time, a sacrifice borne cheerfully in the spirit of their enlightened work, the leading principles of which are now known under the name of "the new education."

To use labor as a means for mental, physical, and moral development—*not merely for practical use and instruction*—is an idea for which the common faculties of man, even the man of this age, is hardly prepared.

(See Appendix C, "School Work-Rooms and School Gardens," Biennial Report of the Superintendent of Public Instruction of the State of California, 1876–'7.)

In Froebel's own institute the labor consisted of housework, *serving each other*, house-building, the comforting and beautifying of the home and surrounding gardens, horticulture, and agriculture.

For special earnings they had introduced cabinet-making, pasteboard articles, brush-making, straw-braiding, and stock and bee-raising. Geography, history, etc., were not taught all the time, but each was the study for a fortnight, then changed.

The originality of this system is the recognition of practical activity as an integral part of education and the parallelism of the mental growth of the human being with the development of all other organisms in nature. With regard to the first, Pestalozzi had attached much value to manual labor and handicraft of various kinds rather as a part of physical training and technical preparation for life, *especially among the lower classes*. But with Froebel all outward training had an inward *correlative;* some *mental* faculty was always brought consciously into exercise to be strengthened and directed while the limbs were gaining vigor and supleness.

Froebel did *not value* manual labor for the mere sake of making a better workman, but for developing, *through the work completed*, a more complete human being. His teaching rested on this *fundamental principle*, that the starting-point of all we see, know, or are conscious of is *action*, therefore human education must begin in and through action, and man's inward being is developed only in what he *works out*. *Life*, *action*, *knowledge* were to him the three notes of one harmonious chord. Book-studies were postponed to strengthen and discipline mental and physical powers by observation and active work. He said the child must be at home in its surroundings—*must first learn to live*.

Your respected countryman, Wm. Crandle, says, in his excellent work "Three Hours a Day:" "It is not to *stuff man*, it is to *make man*, that we want our schools."

That great educator, Horace Mann, said: "The infant mind grows, not by accretion, but through organization; intelligence, wisdom, virtue, cannot be poured out of one mind into another; the increment comes by assimilation, not transfusion. Ideas, knowledge may be brought within

reach of the mind, but unless digested and prepared by a process of the spirit itself upon them, they give no more vigor and power than sacks of grain nourish the jaded beast which carries them on his back."

And Froebel says it is not enough to give bread to men, but to give men to themselves.

The child has to seek to understand outer and visible things, and to exercise its own creative faculties before it can be introduced to the inner world of *thought, symbols, and abstractions*, and forced to gather up the fruit of other *men's labor and experience.*

With regard to the second point, the unfolding of the human powers according to *inner or organic laws*, and which represented his whole theory of education, he had studied and watched development and gradual formation by the action of *inward laws* through all the realms of nature, her plants, animals, and crystals, which impressed powerfully his imagination. That the human being was to be developed by the same processes or laws, and in such a manner, filled his mind as a revelation of divine truth. Therefore, all systems of education that aimed at mere outward accretion, pouring instruction into an undisciplined mind were to him false, the only real system being that which *assisted natural growth*, cultivating and strengthening the opening faculties, placing mental food within the reach of the child—only aiding it to grasp it with its own senses. The case of the true educator was to study the nascent powers and so to frame the surroundings of the child that the active use of *each and all* in harmonious work should become a pleasure, even a necessity to it.

All persons who have any acquaintance with ordinary school methods will conceive from these *two points* the immense chasm that separates them from Froebel's system.

There is another marked feature in his system little known, and still less understood, and worked upon. It is the law of opposites and their mediation. Froebel claims the law of development in the economical world to be the same or similar to that in the spiritual forces, and that these general laws in each should be used in the unfolding of the child. He therefore demands that the common method of instruction, so much regulated by mere reason and logic, be changed into a true and general one. The "intermediation of the opposites," so much used by a number of philosophers, especially by Hegel, Froebel has applied as a means of giving educational impressions. Newton's law of gravitation connects two opposites, centripetal and centrifugal forces, and makes the equilibrium of our globe by mediation. The circulation of the sap in plants which, starting from the root, passes through every part and returns to the root, is analogous to the circulation of the blood in the human body, both indicating a connection between two directions.

All motions made backwards and forwards, up and down, right and left, indicate opposite directions, and have their mediation. Every living thing, as it draws its nourishment from the air or solid matter, selects and keeps its necessary part and shuts out entirely the unnecessary parts. This last represents "taking and giving," an oppositional condition mediated by the purely retaining powers. The same law pertains to all bodily activities; walking consists in lifting up and setting down our feet; fastening with our hands is by opening and shutting them.

The activity of the brain is in the motion of the molecules. Mental activity is impossible without the necessary bodily organs; bodily activity impossible without mental will-power. Therefore the two are inseparable, and considering this fact,

mental and bodily activities underlie the same law without being identical.

The undeniable analogy between the spiritual and physical world is demonstrated by the words we use as pictures and symbols. Nearly every expression of material facts and situations evident to the senses, serves likewise to describe spiritual conditions. The words quiet and strong, light and dark, hot and cold, indicate equally outside and material, as inward and spiritual facts and conditions. These words indicate opposites, and we are best able to recognize and express qualities through comparison. So thinking and will-power depend upon oppositional feelings. Without these opposites neither the whole scale of our higher sentiments nor the conditions for a human mind with free will would be possible, one free to form independent judgment and comparison. But comparison is possible only with objects which, although representing relative opposites, give the possibility of being connected with a middle link, or mediation.

On this basis, and here is seen his unexcelled, unequalled superiority, Froebel has arranged these great philosophical truths, which represent the whole educational reform of the present day, into a systematized network of silvered threads to fit and suit our best earthly treasures, our children, even our babes sleeping in their cradles, known as the Kindergarten.

In accordance with these views, the first impressions given to a child are those derived from the *soft, colored worsted ball*, presenting the unit as well as the *undivided* whole. Through and with this ball as its play-toy, a child learns to recognize the fundamental qualities of all objects in nature, viz., surface, size, color, weight, space, height, breadth, thickness, cohesion, gravitation. Its use in play leads a child to further recognize position, direction, and motion, such as up, down; high, low; over, under; above, below; unto, into; beneath, between; right, left; front, back; top, bottom; rolling, tossing, catching, bouncing—even comparative qualities, as smooth, smoother, smoothest; high, higher, highest; quick, quicker, quickest—are perceived in playing till the child, unconsciously, is fully impressed with their abstract meanings.

The next step to a comparative investigation is the *hard, wooden ball*, till its direct opposite is shown in the wooden cube, representing the *manifold* in the unit with its numerous faces, edges, and corners, which finds its mediation in the cylinder with its two flat faces, round edges, and rounded surface.

In harmony with the previously made statement, that the starting-point of all we see, know, or are conscious of, *is action*, that, therefore, human development and education must begin *through and in action*, that only through what a man works out is his inward being developed; life, action, knowledge, being three notes of one harmonious chord, Froebel introduces twenty-one different gifts to be handled, observed, and acted upon with the following aim, that "upon the right development of the senses depends the right development of the mind, and consequently all development of the human race."

Much interest was manifested in this address, and in the illustrative apparatus used by Miss Marwedel to aid her in exemplifying the system. Many questions were put her, and the lecture was evidently highly appreciated.

At its conclusion, the Chairman introduced PROF. W. E. PRICE, instructor of music in the San Francisco schools, who delivered the following address on music:

Music in the Public Schools.

MR. CHAIRMAN—LADIES AND GENTLEMEN:—A few days ago, I was asked to prepare a few thoughts to offer here, on the

subject of vocal music. I hesitated for some time before deciding to do so. Not because I do not consider the subject of sufficient importance, or because I do not think music should be one of the subjects discussed at such a gathering as this, but because I feel that the subject is one of so much importance that a lecture upon it should have fallen into abler hands than mine. The theme is certainly one of the most prolific, and any one of the many parts into which it might be divided, would furnish material and thought for much more time than I could hope to have here. In fact, I scarcely know where to begin, or what to say first. The early history of the science, if gone into at all in detail, would occupy all my time, and would, I am sure, be full of interest to all lovers of this divine art. I might find a great deal to say about the growth of music in this country, for I am glad to know that it is growing here, and that very rapidly, too. The subject of musical instruments would also be full of interest, as well would the merits of many of the works of the great masters repay a careful study. But as this is a convention of teachers, and as the object of the meeting is to discuss methods and the best course of instruction to be pursued in the schools of this State, I will try to say something about music in our public schools.

No people, however wild and savage, are without music of some kind, and so long as matter retains its sonorous properties, and the atmosphere retains its function as the medium for the transmission of sound, just so long will music be universal. In the earliest history of all civilized nations, we find reference to the subject of music, and just in the ratio of advancement these people made in the arts and sciences, their knowledge of music and the love of it grew. The Greeks were the first to reduce music to anything like a science, and from the Greeks it was carried into the Roman empire, where still further advancement was made in the art. Livy, in his history of the Roman drama, says that music was an inseparable adjunct to the drama, not only among the Romans, but the Greeks also. It had a very early introduction into the sacred rites of the Egyptians and Hebrews, and in all nations the first public use of music has been in the celebration of religious ceremonies. Plato was such a friend to temple music as to wish that no other should ever be heard by gods or men. Tacitus informs us that the Germans used to sing praises to their gods, Teuton and Mannus, in verses, which they recorded as the most memorable events in their history.

The early Christians also had a propensity for singing psalms and hymns, as may be gathered from Acts, xvi, 25, when St. Paul himself and Silas are described as singing in a dungeon. The same apostle, Ephesians, v., 19, recommends singing. St. James says, "Is any one merry, let him sing psalms." In first Corinthians, xiv., 15, St. Paul says, "I will sing with the spirit, and I will sing with the understanding also." Milton, in his "Paradise Lost," speaks of a group of fallen angels trying to direct their thoughts from the misery to which they had reduced themselves, and says: "The harmony suspended hell, and shook with ravishment the audience." Shakspeare, in his "Merchant of Venice," refers to the subject of music in the fifth act, when he makes Lorenzo say to Jessica:

"How sweet the moonlight sleeps upon this bank;
Here will we sit and let the sounds of music creep in our ears,
Soft stillness and the night become the touches of sweet harmony.
Sit, Jessica.
Look how the floor of Heaven is thick inlaid with patines of bright gold.
There's not the smallest orb which thou beholdest,
But in his motion like an angel sings,
Still quiring to the young-eyed cherubines.
Such harmony is in immortal souls."

Therefore, the poet did feign that Orpheus drew trees, stones, and floods.

"Since naught so stockish, hard, and full of rage,
But music for the time doth change his nature.
The man that hath no music in himself,
Nor is not moved with concord of sweet sounds,
Is fit for treason, stratagems, and spoils.
The motions of his spirit are dull as night,
And his affections dark as Erebus.
Let no such man be trusted."

Again, Shakspeare refers to music in his "Twelfth Night," when he says:

"If music be the food of love, play on—
Give me excess of it, that surfeiting,
The appetite may sicken and so die—
That strain again—
O, it came o'er my ear
Like the sweet south wind, that breathes upon a bank of violets,
Stealing, and giving odor."

Mrs. Hemans, in the "Pilgrim Fathers," says:

"Amid the storms they sang,
And the stars heard, and the sea—
And the sounding aisles of the dim woods rang
To the anthems of the free."

Now, in this very cursory glance which I have taken over the past, I think I have proved the assertion I made at the beginning, that music is universal, not only at the present time, but has been in all ages of the past; and to-day, in our own country, there are more persons engaged in teaching this art than all the other accomplishments put together. More money is paid for instruction in this than all other specialties taught at the present time. This goes to prove that music is appreciated more than any other accomplishment. As an illustration of this, we have only to remember that wherever we go, and whatever the occasion, music is the first and the last attraction we have offered to us. At the wedding, and at the funeral, at the church, and at the dance, at the theater, and the lecture, on the battle-field, in the home circle, in the political campaign, everywhere, and at all times, we are asked to listen to music. Now, in order to appreciate anything, we must know something about it; and how is the great mass to know anything about music, unless it be taught? and how is it to be taught, unless in our public schools? I know I have now come to disputed ground, as I remember the discussions which recently took place here, in our State Legislature, and which have taken place still more recently, in many of the one-sided articles which have appeared in some of our newspapers.

I believe it to be the duty of those who are intrusted with the interests of education to see that music is taught in every school in the land.

I will now offer some reasons why I think this should be done. Our public schools should not only aim to give to the rising generation the rudiments of an education, to assist them in the struggle for existence, but they should also aim to cultivate the hearts and natures of the youth who attend them. As Mr. Beecher recently said, in one of his lectures: "The safety of American Republican institutions lies in the intelligence and moral status of our citizens. You cannot afford to say to the great mass of men, in whose hands are your mansions, your funds, banks, and stores, you cannot afford to say to them there is no God to think about, no future you need dread, and no duties you need have taught you. I tell you unless there is a conscience, unless men are instructed in equity, in justice, in relation to right and wrong, in relation to all the fruits of civilization, unless the voting men are instructed somewhere, and somehow, you are standing where Sodom and Gomorroh stood; and if there should come up flames from beneath you, and burn your dwellings, you may thank yourselves for it. You have neglected the means of instruction of the conscience of the common people; and if there were nothing else than mutual insurance, and property insurance, I say you must reconsider such an

example, procure moral teaching, train in sound moral instruction the great mass of men, and their conscience will be your shield, and will supplant the touch of passion."

Now, in no way can we get at the conscience of men, and the cultivation of the heart, and touch the finer feelings of individuals, and bring out what is good and sympathetic, high-toned and cultured, I say in no way can we do this better than through the harmony of sweet sounds. In corroboration of what I have said, allow me to use the language of one of Boston's most prominent educators. He says: "As soon as education is recognized as a means of cultivating the heart and the intellect, of forming character, there is no longer any thought of excluding from the curriculum instruction in vocal music as a useless accomplishment. My advocacy of music as a branch of education is based on my high estimate of its ability as a means of culture. Experience proves that, if rightly managed, it is a help rather than a hindrance to other studies."

I think I can fully endorse the last idea. I am now finishing up my fifth year as instructor of vocal music in the grammar schools of the city of San Francisco, and having had several years' experience as principal and teacher of schools in the East, before I came to this State, I am in a position to know and learn something on this point. We all know that the mind of a child cannot be concentrated on one subject for any great length of time, without injury to the child, or loss of time to both child and teacher. A teacher who has the faculty of getting the entire attention of a class, and every pupil in that class, can mentally exhaust the capabilities of the pupils in reference to one subject in a certain time. For instance, I think more arithmetic can be taught in one hour, if the subject be properly presented, than if the teacher spent the whole school-day upon the subject. After a time the pupils become mentally tired, and lose their interest, and much of what a teacher may try to impart is wholly lost. I think a teacher has not reached the greatest limit of success, until he, or she, has succeeded in taxing the mental energies of the pupils to the fullest extent; and when this is done, care should be exercised that this mental tension should not be continued too long.

Now, suppose at the end of an hour the arithmetics are laid aside, and the grammars are substituted for a time. Here, again, the same thing should occur. The lesson should be made so full of interest that every thinking faculty of the child should be brought into the most lively use. This exercise of half an hour should get all out of the child that ought to be done on that lesson. And so on with the other lessons that may be found in the course of study.

Now, two or three hours of the close attention which successful teachers are capable of securing, will completely exhaust the mental ability of the class; and this is what should be done every day, provided the pupils are allowed plenty of time for relaxation and rest; and if this rest is not given, the teacher will soon find that the pupils will take it, for the noise and bustle will assure him that very little work is being performed. Now, suppose the special teacher of music came in at this time. A sigh of relief goes up from every heart; now we can sing; now we can be happy. I stepped into a class of small children the other day, during the afternoon, and the sensation of pleasure was so audible, that the teacher tried to make an apology for it by saying: "Mr. Price, these children are so pleased to see you, that they sometimes express their delight rather too audibly, but they do not act this way when any one else comes in the room." Well, now, I am not egotis-

tical enough to think that it was my appearance that gave so much pleasure, but the assurance that there had come the time for the singing lesson. And, ladies and gentlemen, if you could only see the faces of such a class after the singing had begun. Every feature of every face radiating the happiness felt within. Pupils who, a moment before, were lopping down on their seats, manifesting the most unmistakable signs of uneasiness and fatigue, are now sitting erect, hands and voices in use, and the mind, too, completely oblivious to time and care; happy, joyous, delighted. But the time has come for departure, and the music books must again be laid aside. Several little hands go up with the greatest modesty, and one is asked, "What is wanted?" The answer is, "Please, let us sing one more piece?" And if all the others, whose hands have been raised, were interrogated, the same question would come from those.

I think I have said enough to justify the remark of Mr. Philbrick, "That music is a help rather than a hindrance to other studies." One or two more remarks, however, before I have done. I will say, without fear of contradiction, that during my connection with the schools of San Francisco, no class where the pupils have done well in music have failed in doing good work in all the other studies. Nay, I can go further, and say, that the classes which have spent most time in music, have always stood higher in annual examinations than classes where little or no time was spent in this way. I will give you an instance. Last year, there was one class under my care, where nothing was done in music, except during the half hour once a week. When I was present, I was told by the pupils, that the music books were gathered up as soon as I left the class, and were not distributed again till I returned the following week. Now, what was the consequence? In the first place, the class stood fifty per cent. lower in deportment than any other class under my care. In the next place, it ran down to be the smallest class I had before the year closed, thus proving that it was not a pleasant place for pupils to be. The pupils would meet me on the way to school, and beg of me to ask their teacher to let them sing now and then. They said: "We would like to sing, and it would be so much more pleasant, and if our teacher would only let us sing, we would work better, and be better."

I did speak to the teacher several times about the matter, and told what the pupils had said to me. The answer I got was, "We have no time for music. We spend our time on something that is more profitable—arithmetic, grammar," etc., etc. And so the matter went till the end of the year. Now I am going to tell you the result obtained at the hands of that class, when all the time was spent *so profitably*, in the study of arithmetic and grammar—studies that will be of some use to persons in after life. In many classes every pupil was promoted, in others nearly all were promoted, and in most of the classes from five to ten out of classes averaging from forty to sixty, would fail to get the required per cent. to carry them into the next grade above; but in this class, where all the time was spent in arithmetic and grammar, the studies for which the greatest number of credits were given, in this class, where not one moment was lost singing, or learning the rudiments of music, one pupil, and only one, was entitled to promotion. And I will say here, that in every class, where the training in music was neglected almost entirely by the class-teacher, the results at the end of the year were similar to the above. In another class I call to mind, where no time was *foolishly* spent on music, the principal told me, forty of the pupils in that class failed of promotion. What bosh and nonsense, then, is

all this talk about the time of the pupil being too precious to be spent in learning music.

Now in the way of discipline I would say a word in favor of music. One of the most prominent principals in this city told me, not long since, that he would rather take out all the seats in his school and let the pupils stand, than to take out music. This was perhaps a slight exaggeration, but it serves to show the high estimate he placed upon music as a civilizer and harmonizer. From my observation of classes, I think I can select the classes in any school, where music is taught the best, without any information being given me, and without hearing the classes sing. There is really a different atmosphere pervading when the soothing influence of music is brought to bear upon children.

In most of our schools in the city of San Francisco we have a kind of military drill, in which the boys are exercised every day, and it has been frequently asserted in my presence that if this be neglected for one day even, the effect is felt over the whole school in the discipline of the pupils. I have not the least doubt of this. This drill secures order, concert of action, harmony of movements, attention to time; in fact, it has system in it, and brings the boys under subjection, and control, while without it all would be chaos and confusion. Now if these few moments spent in this drill in the yard produce such beneficial results in the way of discipline, I contend that a lesson in music will produce far greater results in the same direction. The same concert of action is secured in marking the time of an exercise or a song, only to a much greater extent, for in singing, not only the motions of the hands are required, but also those of the eye and lips; and besides the harmony of motion introduced, the harmony of thought comes in, and occupies every mental faculty at the same time, for the singers must think of the name of each note and its sound. One of the most important lessons any one can learn is to be able to move in harmony with those around him, and if music teaches this in some degree, I think the fact should not be lost sight of. So much, then, for music as a disciplinarian. "It is also an attraction to our schools, and better than compulsory education."

I am told by many of the teachers that their classes are usually better filled the day the special music lesson is given than any other day. Pupils who have been excused on account of sickness or other cause, will make the greatest exertion to return the day the music lesson is given. During the session of the last Legislature the pupils of the schools took the greatest interest in the discussions on the music question. They read the papers daily, and asked me if I thought there was any danger of music being cut out of the course of study. I remember the remarks of one of our pupils of one of the first grades. She met me on the street one morning, and in the most anxious way asked me what I thought they would do at Sacramento about music. She said, "Do you think it will be dropped?" "Oh, I hope not!" said she; "it is the only ray of sunshine we have in our class. Our teacher is so cross, and everything is so dull—and monotonous now—and if they take out music I will leave school." I give this one instance from among the many that came to my notice about that time.

In answer to all these questions about music being taken out of the schools, I gave the one answer, that I did not for one moment think that such a thing would be done. Said I, "Governor Irwin had the good sense to veto this bill once, and I have every reason to think that the same good judgment will prompt him to do the

same thing again should occasion require it." If we secure to our public schools in the future the popularity they have enjoyed in the past, and make of them the great mill, where all are fitly ground together, the children of the rich and the poor, educated side by side, with the same advantages, the same books, the same teachers, the same chance to get an education, we *must* make them attractive. We must teach everything that can be taught in private schools, and teach it as well. If not, the better class of children, I mean the children of the wealthy class, will go into private schools, which they can afford, and will have the best schools, no matter what the cost.

Now if the class of pupils of which I have spoken, absent themselves, and all the little embellishments be removed from the public schools, then and there the popularity of the public school begins to wane and their glory begins to depart. But if, on the other hand, the public schools be made the best schools in the land, and everything be taught in them that can be had in any private school, then will their usefulness continue and their popularity be secure. For these reasons I would ask that music be made a part of the course of study.

Now a thought or two in reference to why music should be taught to children while they are children. We all know the organs of speech in the child are more susceptible, sensitive, and elastic than those of the adult. We are also aware that the ear is more acute, and receives impressions more quickly and indelibly than it does in after years. The rapidity with which a child will learn the accents of a foreign language is proof of this. A case in point comes to my mind. Two or three years ago, a lady, who is one of the teachers of French in the schools of San Francisco, sent to Paris for two little daughters she left there in the care of friends when she came to America. They came over in company with a French relative, who talked French to them on the way, and when they arrived in San Francisco they could scarcely speak one word of English. The mother got into the schools soon after her arrival, and at once set herself to work studying the English, that she might be prepared to make her classes understand her. She was quite ambitious, as I know, and tried hard to improve her pronunciation; kept asking her friends the correct pronunciation of all sorts of words, and really did her best to improve. The children were put in the school where the mother taught, and I remember the first day they came, she introduced me to them, and they could understand nothing I said. But at the end of six months they could converse freely in the English, and had an accent pure and perfect, and without the slightest exertion on their part. The mother is still working at her English accent; but the children are so much her superior in this respect that it fully proves to me the advantage of early impressions in musical sounds.

I believe if children were taught the chromatic scale in early childhood it would be as easy a matter for them to get every sound of it, as it would be for them to say the letters of the alphabet. Gardiner, he who has given so much attention to sounds of all kinds, and written so much upon the subject, and even reduced everything in nature to music—the noises of all the animals, the walk of a man, the roaring of the storm, the sighing of the wind and the rain—in common conversation, says: "The formation of a musical ear depends on early impressions. Children brought up in musical families, often entertained by the sound of musical instruments, so soon acquire a musical sense as in some instances to be regarded as prodigies." Mozart began to compose at the age of

four; and in a paper read before the Royal Society by Dr. Burney, it is affirmed that Crotch played the air, 'Let Ambition Fire the Mind,' when only two years old."

By practice the discriminating powers of the ear can be carried to a very high degree. Mr. William Coltman, of Leicester, who was blind from his birth, had so dull an ear at the age of six that he could not tell the sound of a violin from the flute. At this period he got a piano, which at first amused him by its curious structure. At length his ear was caught by the musical sounds, and he soon began to show an increasing fondness for music. His ear was formed and perfected with great rapidity. When he first heard the "Seventh Symphony," by Haydn, he at once comprehended the different modulations and played them on his piano. He could tell his friends by their walk, as also the age and disposition of strangers by their voice.

Dr. Darwin informs us in his "Zoonomia," that the late Justice Fielding walked into his room one day for the first time and said: "This room is twenty-two feet long, eighteen wide, and twelve feet high;" all of which he guessed by the ear. It is said that he could tell anybody that had been brought before him for forty years by the tone of his voice. Bankers tell genuine coin by the ring. On tossing money, gamblers tell on which side the coin falls by the sound. Miners, in boring for coal, can tell what substance they are penetrating by the sound of the auger. Some persons say they can tell the sound of a flea when on the night-cap, by the sound of his leaping powers. If the ear be alive to such delicate sounds there is nothing in the way of sound too difficult to achieve.

Another reason why singing should occupy a portion of every day in the schoolroom is because it is conducive to health. It is a maxim which applies to the use of all our faculties that, "so long as we do nor weaken we strengthen." And this fact is strikingly true as it regards the voice. If we listen to those whose business it is to cry their commodities in the streets, on comparing their strength of voice with our own, we will be surprised to find what a force of intonation this daily practice produces. It was the opinion of Dr. Rush, that singing should not only be cultivated as an accomplishment, but as a means of preserving health. He particularly insists that vocal music should never be neglected in the education of the young, and states that, besides its salutary operation in soothing the cares of domestic life, it has a still more direct and important effect. "I here introduce a fact," remarks the Doctor, "which has been suggested to me by my profession; that is, the exercise of the organs of the breast by singing, contributes very much to defend them from disease, to which the climate and other causes expose them."

Dean Bayley, of the Chapel Royal, many years back, advised persons to learn to sing as a means of strengthening the lungs and acquiring a retentive breath. I have known several persons who were strongly disposed to consumption, who undertook to practice singing, and were much relieved, and, in most cases, cured. I feel confident that children who sing are less liable to diptheria and other lung and throat diseases. One young lady of my acquaintance, who teaches in the schools, was greatly troubled with her throat at times. I advised her to take music lessons, and try if that would help her. She did so, and was astonished at the result. The affection of her voice not only disappeared, but her general health was so much improved she looked like a different person. She told me herself that she felt it was wholly due to the use she made of her lungs in singing.

I will now offer a short account of what we are doing in the schools of San Francisco: We have seven music teachers, three gentlemen and four ladies. The gentlemen look after the music in the grammar schools and the high schools, and the ladies teach in the primary schools. Where the schools are large, as most of the grammar schools are, a whole day is spent in each school, once a week. We take several classes of the same grade together, and give the music lesson to all at the same time. I seldom teach one class alone, and sometimes I have as many as seven together at once. This plan seems to work well. I can get up quite a friendly rivalry between classes, and this always stimulates the pupils to use their best endeavors. If one class is to sing a piece by note, in three or four parts, in the presence of others, it always has the effect of securing the best results. We have pianos in nearly all the schools, and in many classes the pupils rent pianos, and pay for them themselves from month to month. We ought to have a general assembly hall connected with every school, where several classes could be brought together, and then one piano could be used by the whole school. We have folding doors on the upper floor of all our grammar schools, and when we take several classes together, these are thrown open. We begin with the eighth, or lowest grade, and try to teach them a correct position of the body, a good quality of utterance, the correct sound of the vowels, a good articulation, and an intelligent expression of the sense. They are taught to sing the scale and several songs by note during the year.

I had written something about the course of instruction, and what we do, and how we do it, in all the grades of the schools of San Francisco, which might have been interesting to some, but I found my lecture would be far too long if this were retained, and so I had to leave that part out, for that alone would furnish material for an ordinary lecture. I will only say that the pupils are gradually carried along till, when they arrive at the highest grade in the grammar schools, they are expected to sing the chromatic and minor scales, with major and minor intervals, songs and exercises by note at sight, singly and in concert. They are required to sing and read by note individually, in all the keys in general use. Songs and exercises, in three and four parts, are practiced in these grades. The course of instruction allows fifteen minutes each day for singing, and half an hour weekly for the lesson by the special teacher.

Now, a word about the special teacher. There is no person connected with the school department whose work is more laborious and constant than that of the special music teacher. His programme begins at nine in the morning, and as soon as the first lesson is finished, he will find the next classes waiting, with books in hand, and, although no time is allowed him on his programme for going from one class to another, he is expected to be on hand at the moment, for the classes are all very jealous of the time for music, and it is not a pleasant thing to keep from one hundred to four hundred pupils waiting long. Well, this same thing goes on every day of every week, and at the end of a month, the music teacher finds that it takes rather a large supply of lung power to perform the amount of talking and singing he must do. And then he must always be in the very best humor and spirits. Very little singing can be gotten out of a class unless there is an atmosphere of pleasantness pervading. Some teachers often detract very materially from the efficiency of a lesson by constantly saying things to irritate the feelings of the pupils. These teachers seem to think that a constant warfare must be kept up between themselves and their pupils, and that it must

be understood that they and their pupils are sworn enemies. And with these irritable teachers such is generally the case. But in justice to the great majority of lady and gentlemen teachers of the city, I can truthfully say that they are very agreeable and always pleasant, and I am under many lasting obligations to them for their kindness and assistance, which I can assure them I fully appreciate.

The special teacher is expected to introduce all the songs and exercises, have the pupils sing them over and over again while he is present, make all corrections in tune, time and modulation, and speak of all points where the pupils are liable to make mistakes. Then the class teacher is expected to take up the exercise the next day, and have the pupils report what has been done the day previous, while the special teacher was present.

If a new song be at all difficult, and the class teacher not well up in music, I ask them to leave it till I come again. Then, after a second drill, most classes can do very well without any assistance.

It is of the greatest importance that music be taught properly at first. *I would rather teach three new songs than correct the mistakes in one old song*, after it has been improperly learned. What can be more unpleasant to persons at all acquainted with music, than to hear music murdered. I have heard that grandest national song of ours, "The Star Spangled Banner," sung, or bellowed, in such a way, "that I have thought some of nature's journeymen had made" the singers, "and not made them well," they sung "so abominably." And here is where the advantage of special teachers comes in. I cannot see, for the life of me, how anything like correctness can ever be arrived at, unless some persons, who are adepts in music, be elected to direct and correct the thousand and one faults that most classes are sure to fall into. Even after a careful lesson has been given on some piece of music, and every point carefully spoken of, and the pupils asked particularly to exercise care at certain places, I have come back at the end of a week, and found everything I had spoken of disregarded. Now, if such things occur after careful warning has been given, I can scarcely imagine what would occur if such classes were to have no special instruction, and be left entirely to themselves.

In no way can uniformity be attained among the schools in a city, unless it be by the employment of special teachers. An article appeared in one of the San Francisco papers, a few days since, in which the whole system of special teaching was entirely condemned. In no better way could the author of that article display his ignorance of what he was trying to write about than by making use of such language. In all our colleges and universities where we expect to find the highest and best examples of teaching, every branch is taught by a special teacher for that branch, and, it seems to me, in no other way can such results be attained if the special teachers be selected wholly with reference to their fitness for the position. When a person has a natural taste for a subject, and gives up his whole time to that, thinks about it, reads about it, studies the best methods of teaching it, he certainly ought to do better work than another who, with equal natural ability, has to divide his attention among a dozen different branches. If one teacher in a large public school has a great fondness for mathematics, and much more than ordinary tact in teaching it, would it not be largely to the advantage of every class in that school to have the instruction in arithmetic given by that teacher? And suppose the regular class teacher be possessed of more than ordinary ability as a teacher of arithmetic, would it not be a great advantage even then to have some

one come in once a week, and give them some new thoughts, with a word of encouragement? I think so.

Mr. J. W. Taylor, one of our city directors, has recently taken the pains to find what per cent. of the teachers of the city of San Francisco can teach the music in their grades. He found that about sixteen per cent. of the number said they could do it. Now what is to become of the other eighty-four per cent. without special teachers to assist them? In no place will the old adage, "that which is worth doing at all, is worth doing well," apply more appropriately than in reference to the teaching of music; and in order that it may be done well, special teaching must be resorted to.

Now, a few words about the cost of special teaching. I consider this the strongest point in favor of the system. I would like to have time to elaborate this fully, but must not do so. We have heard so much through the papers about economy and retrenchment, and the complaints of the taxpayer about the enormous expense of the educational system, and the demand of the poorer classes to cut down and throw everything out of the course of study but the three R's, that music especially should be cut out on account of its great expense, etc. Now, I will tell you in very few words what the lessons I give cost the city for each pupil under my care. I will tell you what the cost of this amounts to; this study, about which *they say* the poor people are finding so much fault, and are demanding that it be discontinued. I have taken the pains to figure on the matter, and can tell you exactly. The cost to this city for each music lesson given amounts to the extravagant sum of two-thirds of one cent per lesson, and this not all gold at that. Two-thirds of one cent to the city, mind you; but this is not the actual cost to the parents, the poor people, who are complaining so bitterly about this crushing extravagance. It must be remembered that the *poor* people do not pay *all* the taxes. Now, if we allow that *half* the taxes are paid by the poorer class, then the cost will be only half of two-thirds of a cent, or one-third of a cent per lesson. This would make the actual cost of special instruction in music come to about thirty cents a year; and for the whole eight years, which gives a pupil a grammar school diploma, the cost would be about two dollars and forty cents. The average cost of private lessons of music in the city, I should think, is about one dollar and fifty cents per single lesson, and this would be more than half the cost of the whole eight years' course in the public schools.

Now, in order to be brief, I will say, that I think as much advantage can be had by every pupil in a class of one hundred as could be obtained at a music lesson given at home, in the private parlor of any one of the pupils, and I flatter myself that most of my pupils in the upper grades can read music as well as any pupils of private teachers, who have had the same number of lessons at home, and paid from one dollar and fifty cents to five dollars per lesson. The fact of the poor people finding fault about the cost of music in the public schools is the merest trash and nonsense. It is the only possible show the child of the poor man has to ever get a musical idea, and if you could hear the voices of some of these poor children, and think for a moment the amount of pleasure the singing of these children brings to many a hearth where there is very little else to cheer, I am sure there would be very little objection made to the cultivation of this most expressive and God-given instrument, the human voice.

Allow me to offer a few suggestions as to how music might be taught successfully in country schools, and I am done. If several schools were to engage the services

of some good teacher, and have him spend an hour in each school once a week, I feel confident the results would be more than satisfactory. This could be done in this way. The music-teacher should be provided with conveyance and go from one school to another. Now suppose he has made his appearance at one school at nine o'clock in the morning, and gave a lesson of one hour, taking up the rudiments of music, and teaching scales, and intervals, and everything appertaining to the laying of a good foundation of a musical knowledge, and after this lesson the same thing should be done at the next nearest school. Schools in the more thickly settled parts of the State are not farther apart than a person could drive in an hour. Will say from six to ten miles. Now if the departure from the first school were made at ten o'clock, the next school could be reached at eleven o'clock. Then a lesson of an hour could be given before noon. After allowing time for lunch, another school might be reached, and another lesson given before four o'clock, the time that schools in the country dismiss. Then there would be plenty time left that evening to drive on to another school, and secure a place to stop during the night. If schools enough could be secured, every day of the week could be employed in this way by the music-teacher. The results of such an arrangement could not fail to be very satisfactory. It would increase the interest in all the country schools and very largely add to their efficiency. Besides, there are very many parents in the country who are anxious to have their children learn music, but have no facilities for so doing on account of the distance they, or a teacher would have to travel, to get together. I know several persons in the country now who drive with their daughters ten and fifteen miles, twice a week, to secure the instruction of music-teachers.

Now, the system I propose would bring the lessons right to their doors. While I have been talking about this, some one has been thinking about the cost of such a plan. I will say something about that We will suppose each lesson costs three dollars, and that these lessons are given each day. This would enable the music-teacher to pay the expenses of traveling, and allow him a very fair compensation for his services. Now about the manner of meeting this expense, I think, in most country places there are persons enough, young ladies and gentlemen, who would be only too willing to come in, on the day the music-lesson might be given, and pay all the expense of such lessons. Say they were charged twenty-five cents for each lesson. This would make their lessons cost them one dollar per month. In this way they could secure six lessons for what one private lesson would cost, besides saving the time and expense of traveling ten or fifteen miles. And suppose no one came in from the outside, the expense then would only be twelve dollars per month, and all the children in the neighborhood would be taught music, and taught it properly. I feel confident after such a system had been tried for one term the results would be so satisfactory that many a parent well to do would rather pay the whole expense than have the music neglected. The right way to do this, would be to pay for the music out of the school fund, as it is done in San Francisco and Oakland; but if objections were made as they might be, at first by short-sighted persons, two or three schools could club together, get tickets, let the pupils dispose of them, and give a union concert, at some convenient place, and, after paying expenses, divide the proceeds between the schools, in proportion to the number of tickets sold by each school. Having the same teacher and the same books, probably they would learn the same

songs, in the same way, and with very little extra work all could be made to harmonize. I would really urge upon some of the schools to try this, and I am sure it would succeed. I cannot close my remarks more appropriately than by using Horace Mann's remarks in reference to music. He says: "Nature is full of music—varied in its tones and rich in melody. There is music in the stillness of the twilight hour; in the voice of the balmy breeze, as it sighs amid the stirring leaves of the starlight grove, or sleeps upon the calm bosom of the reposing waters; in the bubbling of the inland fountain, and the thunderings of the foaming cataract; in the ripplings of the mountain rill, and the majestic voice of the storm-stirred sea. There is music in the symphonies of the joyous songsters of the grove beneath, and the mutterings of the pealing thunders above; in heaven, on earth, in the outspread skies, and in the invisible air, in the solitary dell, and on the mountain's cloud-veiled top, where human footsteps have never left an echo; in the deepest cells of the passion-stirred heart, and the inanimate depths of the material world; in the dim rays of earth, and the beams of those celestial lights which gem the high firmament and light the angels to their evening orisons; in the tones of woman's voice, and in the outgushing of the sweet innocent voices of children; in all, through all, and over all, and forever vibrating the rich music of universal harmony, and the dull tones of undying melody."

The convention then adjourned until 8 P. M.

EVENING SESSION.

At 8 P. M. the convention assembled, and PROF. WILLIAM WHITE, of the San Francisco Boys' High School was introduced, and read the following paper on

Political Economy in the Schools.

I stood on the San Francisco sand-lot. Around me were thousands of fellow-beings, many of them respectable in appearance, neatly clad, and intelligent looking. Their speaker propounds to the audience the following question: "How many are in favor of hanging such a one —hands up?" naming a wealthy and influential citizen of San Francisco. A forest of hands grew in a moment, the only barren gap in that forest being on the spot where I stood. Hundreds of rebuking eyes informed me that the vote was expected to be a unanimous one. It was not.

The next order of business was *not* to appoint a committee to carry out the wishes of the meeting. Soon after, a collection for the benefit of the speaker was called for, a social chat on a large scale ensued, and the meeting dispersed. There is much food for reflection in this circumstance. Outside of our own country, such utterances, inflaming the popular heart, would burst forth into the irrepressible fury of fearful deeds. In no other country, perhaps, would liberty of speech be permitted to stray so far within the boundaries of license. No where else, as I believe, could so large a body of men, under like circumstances, regain their balance and avoid being precipitated into the abyss of crime.

Our people in the mass are like the immense boulder of the mountain, which may be moved by a breath of wind, but quickly returns to its condition of stable equilibrum. There is abroad among the people a healthy conservatism, born of native common sense, and of acquired intelligence that will not succumb permanently to riotous excess. Doubtless many of that assemblage had obtained much knowledge and some wisdom from the public schools. Perhaps there were

but few who could not read and write. But I shall take this opportunity, and every other at my disposal, to reiterate my convictions, that the knowledge of the primary schools cannot furnish the requisite amount of material for the structure of useful citizenship. I believe in foundations only when they fulfill their functions, that of supporting structures. I lose my admiration for them when they are but mere cellars, in which men must either live or die, (according to their convenience) being too often compelled to make a choice between these two evils.

Reading is as indispensable to the intellectual as breathing to the physical. The presence of each is negatively good, the absence of either is positively bad.

Of what use to himself or to the world is a man that is a mere phonograph, a word-repeating mechanism, a word catcher, a sound repeater? Or of what benefit is reading to a man, not a machine, that has acquired no taste for useful knowledge, whose reading, if good, falls upon a barren soil; if bad, springs up into a rank growth of passions and prejudices? Men will not read what they ought to unless educated to do so; men will read what they ought not to too often in spite of education. And men that do not or cannot read with reflection, with wide mouths, will swallow any doctrine under heaven, and save heaven, that is presented by any practitioner of the regular school, or of no school, provided he believes in himself.

The lesson of the sand-lot is that the youth of this age require a higher and a wider culture than was ever before demanded in the history of the world. The great ambition of the present age in our land is to acquire wealth. And it is a noble ambition, if rightly directed. A man that despises wealth should despise himself, and is fitter to be an oyster than a man. The sign of promise to our nation is this universal wealth desire. No slave desires wealth; the idea is beyond his mental horizon. The savage is ambitious only when he is hungry. The peasant tenant of Ireland has no aspiration save that which finds its fruition in boiled potatoes. The toiling masses of many portions of Europe are contented, from generation to generation, with the scanty blessings that filter through the almost impervious strata of society above them. This wealth seeking, if wisely directed, is the barometer of freedom and intelligence. Without national wealth the nation dies; without distributed wealth freedom dies. I can well remember the time when, in one portion, at least, of good old Puritanical New England, wealth was looked at askance, and was acquired under protest, and with suitable apologies to the Lord. Before the principles of political economy were generally investigated, it was thought, more especially by the poor, that wealth is corrupting, because many wealthy men are corrupt. And it is corrupting; so are *all* the blessings of providence corrupting if they are appropriated by the lower, the animal nature of man. Corruption often nestles in the bosom of poverty, in a torpid condition perhaps, though it may require but little warmth, as that of a dram of liquor at election, to rouse it to full activity. But let no man dread the evils of riches until riches are visited upon him, for if virtue can safely guide him through the tortuous paths of poverty, she can as safely conduct him along the broad avenues of prosperity. If, then, wealth is a desirable thing to have in the nation and in the household, we should teach the youth of the present generation the principles of political economy in its widest sense, that they may learn how to acquire wealth, how to possess it, how to use it for the highest benefit of themselves and of the community in which they live; that they may comprehend the principles of government, and especially of self-govern-

ment ; that they may be actuated to become self-dependent and just in their dealings with their fellow-men. When I see large masses of men ready to commit themselves to any doctrine that may be announced from the rostrum, I tremble for the republic. If ignorance takes the helm, the ship of State is doomed ; for there can be no other form of tyranny so dangerous and fatal as that inaugurated by ignorant men. "Educate!" should be the watchword of the republic ; and let every youth be instructed in the principles of political science, for all will or should be wealth-producers, all will be citizens. The cry that the masses are being over-educated is a selfish and otherwise a meaningless one. For the plane of slavery they are over-educated. It was once a crime to teach a slave to read. For the plane of dependence on a superior aristocratic class they are over-educated. But for the plane of freedom and equality before the law, *never*.

If the avenues of wealth and political preferment are public highways, and lead to national prosperity, let every pilgrim to the shrine, whether halt or blind, be provided with the staff that shall help him to his destination. The time has gone by when the lower classes are to be treated like children or minors. They will help to form society, and society will become in a great measure what they are. If they are mentally and morally diseased, their disease may become a pestilence, sweeping humanity before it. If they have only sufficient intelligence to respond to the cry of "hands up!" they will inaugurate the wildest political schemes that even demagogues ever imagined. But if their heads and their hearts, as well as their hands, are educated, the problems of humanity will be safe in their keeping. The men, however, that advocate hanging without the benefit of judge and jury, that would preach and practice, if possible, the confiscation of private property, the first and necessary step to communism, such have yet to learn one of the first axioms of political science, that government is instituted for the protection of life and property. Until the golden rule shall cease to circulate from hand to hand, like a demonetized coin, instead of being treasured up for its intrinsic value, until the dawn of the millennium, or until we reach a better world, society will be founded on the rights of private property ; and the sooner the blind receive their sight in this matter, the better for themselves and for society. The dream of ignorance is the equal distribution of wealth. As well might the dreamer expect the wealth of the ocean to be equally distributed, so that the surface of its waters should conform to the inequalities of its basin. There is no such thing as equality outside of mathematics. Men differ in capacities as much as jugs, and what will half fill one will cause another to slop over. But I believe it to be no Utopian dream, that every one may be filled according to his capacity, and that without diminishing the resources of his neighbor.

To accomplish this desirable result the upper classes as well as the lower must be more conversant with the principles of political science. I believe that many a wealthy man would do well to study one of the first axioms of mathematics, "The whole is greater than an any of its parts," or "The whole is equal to the sum of all its parts," and apply this simple but important truth in political economy. Capital is on the ladder, but labor holds it in position ; and the peculiarity of the ladder is that it will surely slip the moment that labor lets go. Land, labor, and capital constitute the trinity of wealth, or, in the language of political economy, they are "the three requirements of production, without the combined agency of which no wealth can be produced." These three

hath God joined together, and no man may put them asunder. No antagonism exists among them, but rather in the minds of selfish men. If all men were equally intelligent and equally moral this conflict would cease to exist, and it will surely disappear in the proportion that intelligence and morality approach a common level in the minds and hearts of men. From land the first of these three elements of production originates, either directly or indirectly, every article of commerce. Food, clothing, and shelter are among the beneficient products of the soil. The industries that develop the resources of the soil are the indispensable basis of all other improvements. Nature has gathered in the vast storehouse the wealth of the nations, and if this wealth were distributed as Nature designed, want and destitution would be almost unknown. But this cannot be in the present state of intelligence of the people. The large landholders are slow to learn that their economical interests are indissolubly united with those of the laboring classes; and to apprehend the truth, that he that giveth enricheth himself, and he that withholdeth impoverisheth himself. If the landed proprietors were gradually to divide one-half of their possessions into farms for laborers with their families, providing, if necessary, seed and implements, and receiving their pay in easy installments and in the enhanced value of the remainder of their land, they would increase their own resources many fold, would help to increase the wealth of the nation, to abolish poverty, and to give security to life and property. The laborers, on the other hand, have yet to learn as a class the importance and dignity of agricultural labor, and the proud satisfaction of proprietorship, which is the best promise of good citizenship that could be made. The laborer must be educated out of the tenement into the home, and out of the noisome physical and moral exhalations of the city into the pure air and influences of country life. When we become what we have begun to be, a nation of homes, the most important problem of political economy is solved. In France, the Government became intelligent before the people; the result is, millions of farms and homes possessed by the common people, and now that the education of the masses (which has until recently been neglected) has begun its noble work, we may confidently believe that an era of unexampled prosperity has dawned upon that nation. If to a knowledge of the rudimentary branches is added a comprehension of the principles of political economy and of government, we may safely predict a prosperity that shall be permanent. Three-fifths of the population of France are engaged in agricultural operations. Of the entire soil only seven and a half per cent. is uncultivated or unproductive. Of the productive portion fifty per cent. is arable land and gardens, four per cent. vineyards, twenty-eight per cent. meadows and pastures, and eighteen per cent. forests. As a necessary consequence France ranks second to Great Britain in the extent and value of her manufactures. After her desolating war with Germany we looked to see her stripped of her wealth for a generation to come, but she had recourse to the great storehouse of Nature — land — and at once rehabilitated herself. With an area but little greater than that of this State, France supports in comfort a population of almost forty millions. California, the leading State in the export of wheat, gold, quicksilver, wood, and wine, the value of whose wheat exported exceeds that of the gold, whose agricultural, mining, and commercial resources, if fully developed, would almost defy computation, supports but grudgingly a population of less than a single million, and frowns upon further immigation.

However, this most important problem of bringing these two elements of production, land and labor, into closer communion, is to be solved, and whether it is to be solved by this or the succeeding generation, one thing is certain, that the rights of property will be respected if the people are enlightened in the principles of wealth and government; and until the people are thus enlightened the vital questions of the nation will be decided by hands rather than heads; by demagogues rather than by thinkers. According to reliable statistics the wages of skilled laborers in the City of San Francisco vary from seven hundred to twelve hundred dollars a year. If a portion of this class were transferred to the fertile agricultural lands of the State their energy and intelligence would accomplish far higher financial and social results for themselves and the community than at present. They would breathe a purer physical and moral atmosphere; they would enjoy more leisure for recreation and mental improvement, be less exposed to the temptations that lead so many in our large cities to their certain ruin, and could provide for their children, what children in this country so much lack, industrial employment. For it is painful, indeed, to witness the physical helplessness of the present generation of American youth in our large cities, whose large heads and small hands indicate that mental activity and manual dexterity are coming to be regarded as unfit associates. Let children be taught by their parents to put a portion of their brains into their muscles, and to help exalt manual labor. It is probable that this great land problem is reaching its first stage of solution. We hear of isolated cases of wealthy land-owners that are prepared to dispose of small tracts of land on liberal terms. We hear of land associations that *promise* at least great results in this direction. In the neighborhood of Placerville one of these companies offers for sale four thousand acres of land in tracts of forty acres each. The company propose to build a house on each tract, and the purchaser is to pay for land and improvements in labor, devoting two-thirds of his time to the cultivation of the lands belonging to the company, and the remaining one-third to the development of his own property. It is estimated that in six or eight years the purchaser may in this manner be enabled to cancel all indebtedness to the company. I am informed that a fruit-drying establishment in connection with this enterprise is already inaugurated, and the industry of fruit-canning is contemplated. If it be demonstrated that this land and labor question is impossible of solution at the hands of individuals or associations, it would seem right and proper that the Government should furnish aid, by selling its lands to *actual* settlers on long terms of credit, and by making such other provision as may be found necessary; for, as Mill says, "Anything which it is desirable should be done for the general interest of mankind or of future generations, or for the present interests of those members of the community who require external aid, but which is not of a nature to remunerate individuals or associations is in itself a suitable thing to be undertaken by Government." The principles underlying this and other political questions that are agitating the nation are to be studied and comprehended in the school-room, or they will be distorted and misapprehended on the sand-lot. Is it a matter of only passing interest to the thinking portion of the community that three million persons are idle and out of employment in our country? I find this statement in the Report of the Silver Commission. Is this circumstance totally disconnected with the general welfare of the people? These men, if employed,

might be adding daily three million dollars in value to the wealth of the nation, or nine hundred million dollars yearly. In less than three years the wealth of their production alone would be sufficient to cancel the national debt. So long as a few educated men investigate these facts, and speculate and theorize upon them, the facts will remain and grow, but when the people begin to study them, it will be with the earnest purpose of finding the seat of the disease and applying the appropriate remedy. If educated, they will kill the disease; if ignorant, they are likely to kill the patient, if, there be any potency in patent medicines. The first remedy suggested for these unfortunates proceeds from the heart. It is public charity. This is a powerful opiate, and should be administered only in extreme cases; for the patient soon becomes so dependent upon it that he at length is utterly helpless without it. Except in temporary emergencies and in overwhelming distress, it is not true charity to provide men with a livelihood, but rather with the means of obtaining a livelihood. In the words of Herbert Spencer, "Manifestly out of a given population, the greater the number living on the bounty of others, the smaller must be the number living by labor; and the smaller the number living by labor, the smaller must be the production of food and other necessaries; and smaller the production of necessaries, the greater must be the distress." These unemployed men not only fail to increase the wealth of the community, but consume moreover a portion of the wealth produced by others. More than this, many of them constitute an element of disorder in society, called tramps, who having tasted the sweets of charity, bid farewell forever to honest labor. They besiege our dwellings at all hours of the day, often refusing to leave until they receive a blessing in one form or another.

This is an evil that is calling loudly for a remedy. This is a question that demands and will sooner or later receive the intelligent consideration of the whole people.

It is of course a truism that no wealth can be produced without the assistance of capital, and yet it is one of those truisms that is so often merely assented to by the uninstructed mind and then rejected as the corner-stone of a logical demonstration. That portion of wealth that is applied to the charity fund is generally diverted from the capital of the nation. If one-half of this amount could be capitalized, employment might be provided for those among the idle that are willing to labor. It is mere folly to talk of the wages for labor until there is a wages fund, and there can be no wages fund without a capital. Indiscriminate charity, then, is unproductive; it is worse than this, it works an irreparable injury to the recipient at the same time that it cripples the power and efficiency of the producer, who deprived of the instrument of labor—capital—himself helps to swell the ranks of those that must look to charity for maintenance. If those who subscribe so liberally their hundreds and their thousands to alleviate the wants and sufferings of their fellow-men, could be induced to devote, not less money, but more time to the consideration of the question how this great charity fund of the nation, which is now so quickly destroyed and again renewed at the expense of the producer, could be capitalized, and made a perennial blessing to the entire people by helping otherwise helpless men to help themselves, then might we look forward with hope to the diminution of poverty and crime and to the more perfect security of life and property.

As a business enterprise, would it be greater financial folly for an incorporated company of philanthropic men to invest that portion of wealth set aside for char-

itable uses in the purchase of tracts of land to be divided into homesteads for such of the deserving poor as are willing by labor and saving to earn a title to independence and a home, than it would be to devote that same portion of wealth too often to a single unproductive use, rendering the recipient more dependent than before and in the near future more wretched and discontented than ever?

With the abundant offerings of a liberal people labor exchanges might be established in every community, not isolated or independent one of another, but united in the bonds of a common purpose, that of bringing together for mutual benefit the disunited forces of capital and labor. Private industrial schools might be inaugurated, not for reformatory purposes, but to provide with the elements of an industrial training such as would be benefitted thereby. We belong to a nation whose every heart-throb sends forth living streams of sympathy to the afflicted portions of the body politic.

If our large cities are swept almost from the face of the earth by the destroying flame, the resources of the nation are pledged for their immediate reconstruction. If pestilence invades, its horrors are diminished, its survivors are led back from the gates of death and despair to the paths of hope, by the great hand of national sympathy. This is as it should be, and is an honor and a glory to our people; but a higher duty and a nobler work than that of alms-giving is before us. The poor we have always with us; our own good, as well as theirs, requires us to lead them up to higher planes of intelligence and to wider fields of usefulness. The public sentiment in this matter needs awakening. We are slumbering in a false sense of security. Poverty is becoming more and more powerless to help itself; but like Sampson of old, if left bound outside the temple, it may shatter the pillars thereof, and bring ruin upon the heads of all. This dead weight of poverty must be lifted, or it will surely crush out the life of the nation. How it is to be done, no one man is able to say; but it is the duty of every intelligent man to ponder well this all-important subject, to suggest thoughts, to gather statistics, to advance theories, until the truth at length is reached. If we go beyond political economy, political economy must overtake us. If philanthrophy is not found among the principles of that science, it must be placed there. Philanthrophy and common sense agree in this, that every avenue of production should be opened. If all are consumers, all, as nearly as possible, should be producers. How remarkable is this cry of over-production! Too much wealth for poverty to purchase! Let philanthrophy place the instruments of labor in the hands of the idle, that they may earn the right to participate in this over-abundant wealth. Those that are idle through ignorance must be enlightened, and set to work; those that are idle through misfortune must be helped; those that are idle from choice must be constrained to labor, if it be necessary to establish a public work-house in every community. Every man that is willing to work, but is unable, for good and sufficient reasons, to obtain employment, must be provided therewith, on the principle that the welfare of society, as well as his individual welfare, demands it. Those that are wilfully idle should be compelled to labor, on the principle that every man should be made to pay his debts, if he possesses the ability to do so, and that otherwise he must inevitably become a beggar or a criminal, and thus in either case be supported by the community that he infests. If practical methods for providing the helpless with employment can be devised, the pecuniary means will not be wanting. We all know full well the enthusiastic liberality of our people.

If the rod of definite purpose smite the rock, the abundant streams will gush forth. Many a man of generous nature, that curbs his generosity, because he realizes that the present methods of dispensing charity too often fail of the desired end, would gladly grasp the hand of opportunity, and devote a liberal portion of his means to the practical solution of this great problem. Again, if philanthrophy is to have a voice in matters of business, the manhood of the laborer should be recognized. As has been well said by President Chadbourne: "The rule now commonly acted upon is that business must be cared for, and men must care for themselves. The principle of action, in the end, must be that men must be cared for, and business must be subservient to this great work." If employees are regarded by their employers as mere machines, they will do mechanical rather than intelligent work. The efficiency of their labor being greatly impaired, and constant supervision over them being required, capital works at a double disadvantage, and its profits are materially reduced. If laborers receive the treatment of slaves, and submit to it, their self-respect and ambition deserting them, they neglect their own as well as their employers' interests, and gradually cast aside all habits of thrift and morality. The employer is under moral obligations to feel a paternal interest in the welfare of his workmen, and to elevate by every possible means their social condition. The workmen on their part should be expected to cultivate habits of frugality and temperance. It is to the frequent absence of these desirable relations between employer and employed that we must attribute much of the extravagance and dissipation that render so many of the latter class unfit for higher social conditions. Reliable statistics inform us that $600,000,000 is annually expended in this country for intoxicating drinks, and that $400,000,000 of this fearful tax upon industry is paid by working men. Besides this enormous unproductive expenditure of the wealth of the country, consider the additional outlay of time and physical strength, together with the irreparable loss of moral and religious integrity. This vast amount might be saved yearly to the productive capital of the nation, without curtailing by a single dollar the necessary expenses of the working man. When in the nature of things it becomes possible to capitalize productively the greater portion of this wasted wealth, then may we receive the answer to this most important question, "How shall we find employment for our unfortunate, helpless brethren?"

The principles to which I have for these few moments directed your attention, and others to which I have no time to allude, I believe to be worthy the consideration of all, and especially of the youth of our schools. It is of the utmost importance that they should be well grounded in the fundamental and acknowledged principles of a science that is of practical and every-day importance.

The subject of political economy has been for two years past one of the studies of the English course in the Boys' High School of San Francisco. This branch has been pursued by the pupils with unusual interest and most gratifying results. The educational value of the study I regard as inferior to that of no other. The classification of principles, the tracing of cause to effect the frequent excursions into the adjacent fields of science, discipline and broaden the mind of the student. The principles clearly stated and familiarly illustrated, as by Bastiat, Mrs. Fawcett, or by Prof. Perry, (the last of whom I am proud to allude to as my instructor of twenty years ago) are easily and promptly apprehended by the youthful mind. The pupils unite in pronouncing this study, as to their minds, one of the easiest, the most

entertaining, instructive, and practical of all their studies. As an illustration of the style of Bastiat, which is so pleasing even to young pupils, permit me to quote a short example, refuting the popular fallacy that the more money there is in circulation, the richer will be the community which possesses it.

"Ten men sat down to play a game, in which they agreed to stake one thousand francs. Each man was provided with ten counters, each counter representing ten francs. When the game was finished, each received as many times ten francs as he happened to have counters. One of the party, who was more of an arithmetician than a logician, remarked that he always found, at the end of the game, that he was richer in proportion as he had a greater number of counters, and asked the others if they had observed the same thing. 'What holds in my case,' said he, 'must hold in yours, for what is true of each must be true of all.' He proposed, therefore, that each should have double the former number of counters. No sooner said than done. Double the number of counters were distributed; but when the party finally rose from the play, they found themselves no richer than before. The stake had not been increased, and fell to be proportionately divided. Each man, no doubt, had double the number of counters, but each counter, instead of being worth ten francs, was found to be worth only five; and it was at length discovered that what is true of each is not always true of all."

Finally, in view of the considerations that I have presented, let me urge the introduction of the study of political economy into the high schools and into the highest grades of the grammar schools of the State. Our pupils of to-day will soon be the business men of the community, the citizens of the State. Let them learn now the lessons of industry, frugality, and temperance, that are inculcated by political economy. Give them the training that will enable them to penetrate to the sophistries of designing men, and to refute the fallacies of ignorance. Let them understand the relations that exist, or should exist, between labor and capital, that they may be prepared to assist, if necessary, in the adjustment of these inseparable relations. And in connection with this study, let not the higher considerations of philanthrophy and morality be neglected. Then as capitalists, they shall wield the power of wealth in a just and beneficent manner; as laborers, they shall be faithful to themselves and to their employers, looking forward to the time when they, like others that have preceded them, after a probation of abstinence, shall have accumulated *a capital as the reward of faithful labor.*

The address was listened to with great attention and interest by a large audience, which included the Governor of the State, and many prominent State officials. At its conclusion, a motion was made and carried, that a vote of thanks be returned to Prof. White for his able address, and a copy be requested for publication.

Mrs. William White then gave a humorous recitation, entitled "Josiah Allen's Wife," which afforded great amusement to the audience.

The Chairman then introduced Prof. Joseph Le Conte, of the University of California, who delivered the following address on

Evolution.

Now, it is indeed true, that there has been in these modern times a strong tendency, a current of thought, in the direction of materialism. It is true, too, that this tendency is strongest in the domain of science, and among sciences, strongest of all, in biology and geology; but I believe it is true, also, that this is only a passing phase of thought, an ephemeral fashion of philosophy. As a sympathizer with the age in which I live, still more as a scientist, and most of all as a biologist and

geologist, I have felt the full force of this tendency. In this stream of tendency I have stood, during all my active life, just where the current ran swiftest, and confess to you that I have been sometimes almost swept off my feet. But it is the duty of every independent thinker not to yield blindly to the spirit of the age, but to exercise his own unprejudiced reason; not to *float* and *drift*, but to *stand*. I think I can show you that materialism is not the necessary outcome of scientific studies and the scientific spirit. For this purpose, I will select that scientific theory which is supposed to be *par excellence* materialistic, viz., the theory of evolution. I wish to show that even evolution does not necessarily lead to materialism, and that to conclude so, is a very shallow view of the subject.

First of all, I wish frankly to acknowledge that I am myself an evolutionist. I may not agree with most that evolution advances always *cum æquo pede*. On the contrary, I believe that there have been periods of slow and periods of rapid, almost paroxysmal, evolution. I may not agree with most, that we already have in *Darwinism*, the final form, and in *survival of the fittest*, the prime factor of evolution. On the contrary, I believe that the most important factors of evolution are still unknown, that there are more and greater factors in evolution than are dreamed of in the Darwinian philosophy. Nevertheless, evolution is a grand fact, involving alike every department of nature; and more especially evolution of the organic kingdom and the origin of species by derivation must be regarded as an established truth of science. But remember, evolution is *one* thing, and materialism *another* and quite a different thing. The one is a sure *result of science*, the other a doubtful *inference of philosophy*. Let no one who is led step by step through the paths of evolution, from the mineral to the organic, from the organic to the animate, and from the animate to the rational, until he lands logically, as he supposes, into blank and universal materialism; let no such one, I say, imagine for a moment that he has been walking all the way in the domain of science. He has stepped across the boundary of science into the domain of philosophy. Yet the step seems so easy, so natural, so inevitable, that most do not distinguish between the teachings of science and the inference of philosophy, and thus the whole is unjustly accredited to science. Now, as most people not only do not make, but have never imagined, any such distinction, I am anxious to make it clear to you. This I can best and most briefly do by some simple familiar illustrations.

It is curious to observe that no sooner do we find out, in any work of nature, *how* it is made, than we all say that it is not made at all; it made itself. So long as the origin of species was a mystery, every one admitted that species must have had an intelligent Maker. But no sooner did we discover the process, than every one seems to think that no Maker is necessary at all. Now, the whole object of science is to discover *processes* by which things are done, or *how* things are made. Is it any wonder, then, with this perverse tendency of the present mind, that science should ever and anon seem to destroy belief in a Supreme Intelligence?

Again, it is curious to observe how an *old* and familiar *truth*, coming up in a *new form*, startles us as an impossible paradox. I well remember some twenty-five years ago, when the little instrument, the gyroscope, first made its appearance, how it startled everybody by its seeming violation of the laws of gravity. Imagine a heavy brass wheel rotating rapidly at one end of an axle, while the other end is supported on a vertical column. So long as it rotated, the heavy wheel, instead of falling, re-

mains suspended in mid air, revolving meanwhile slowly about the point of support at the other end of the axle. At first sight it seems as wonderful and as paradoxical as the body of Mr. Home, the spiritualist, sailing in mid air in full view of his gaping and noble audience. In the case of Mr. Home, we suspect some mistake or deception ; but there was no mistake about the gyroscope. Yet this strange paradox, which startled people so, and which so flooded scientific literature with explanations, is an old familiar fact in a new form. The problem is precisely the same as that of the *boy's top*, which spins and leans, and slowly revolves in its leaning, but does not fall so long as it continues to spin.

Now, in evolution, also, we have no *new* truth, but only an *old* truth in a *new form* : and lo ! how it startles us out of our propriety ! *The evolution of the individual*, by a slow process, from a microscopic germ—everybody knows this ; yet it has never heretofore interfered with a belief in an intelligent Maker of each of us. Perhaps most of you may remember when first at your mother's knee you were asked, "Who made you?" and you answered as you were taught, "God made me." But suppose you had asked in return, "How?" The only true answer would have been, "By a process of evolution." Yes, every one of us was *individually* made, (and is not this far more important for us individually than any origin of species, even of the human species?) by a slow process of evolution, from a microscopic spherule of unorganized protoplasm — the germ-cell. Yet the knowledge of this fact did not make us ridicule the reverent answer of the little one, or despise the pious teachings of the mother. Why, then, should it be different in this case of the origin of *species* by evolution?

Again : all vexed questions are such, because there is truth on both sides. Unmixed error does not live to plague us long. Error lives only by virtue of a contained germ of truth. In all vexed questions, therefore, there are three views, viz : two opposing, partial, one-sided views, and a third, more rational and comprehensive, which combines and reconciles them.

I can best illustrate this by the familiar story of the fabled shield. You well remember how, in the good old times of knight errantry, this shield was hung up in the sight of all men, in token of the fact that the owner challenged the world to mortal combat. You well remember that the shield having been seen by many knights, these knights, on comparing notes, could not agree as to its color, some declaring that it was *white*, and some equally certain that it was *black*. You well remember that after many lances had been splintered, after many broken heads and bloody noses had been endured in the vain attempt to settle this *vexed question* by the blundering logic of blows and knocks, as was the fashion in those days—(alas ! do we not even now settle many questions in the same way, only we call the process now the "*Logic of Events*"?)—after, I say, many blows had been given and taken in the sacred cause of Truth, some one who, strange to say, had something of the spirit of science, and who therefore thought that truth was to be discovered, not by conflict, but by *observation*, proposed that the shield be examined. The result you all know—*one side was white and the other was black.*

Now, do you not observe that both parties in this dispute were right and both were wrong ! Each was right from *his* point of view. Each was wrong in excluding the *other* point of view—in imagining *his* truth to be the *whole* truth. And do you not observe, also, that the true view combined and reconciled the two partial views? There is an old adage that "truth lies in the middle" between

antagonistic extremes. Now, while there is a kind of truth in this adage, yet, as usually understood, I believe it contains a most pernicious error. It is the favorite adage of the timid man—the trimmer, the time-server, the politician, the fence-man. Suppose there had been present on this occasion one of these fence-philosophers. He would have reasoned thus: "These gentlemen are of equal intelligence, equal veracity, and equal *strength* (a most important element in making up an opinion for these fence-men); the one says the shield is white and the other says it is black; now, truth lies in the middle; therefore, I conclude that it must be a kind of gray or neutral tint, or perhaps a sort of *pepper and salt.*" Do you not observe that of all the crowd he is the only one who has absolutely no truth in him. No, gentlemen; truth and rational philosophy is not a mere *mixture* of opposing views—truth is *not* what our English friends might call a philoshphic "'alf-n-'alf." It is rather to be sought in a more comprehensive view, which combines and reconciles opposing partial views—it is a stereoscopic combination of *two* partial surface-views into *one* objective reality.

So is it, gentlemen, with many vexed questions; so is it with the question of *origin of species*. There are three possible views in regard to the origin of species. The first asserts Divine agency by *miraculous* creation, and therefore denies any *process;* the second asserts *evolution-process*, but denies Divine agency; the third asserts *Divine agency by evolution-process*. So, also, are there three corresponding views in regard to the origin of the individual—of you, of me, of each of us. The first is that of the little Innocent, who thinks God made him as he (the little Innocent) makes *dirt-pies;* the second is that of the little Hoodlum, who says, "I wasn't made at all; I growed;" the third is the usual adult belief—that we are made by a process of evolution. Do you not observe, then, that in the matter of the origin of species, many good theologians and pietists are in the position of the little Innocent? They think that species were made *without natural process*. On the other hand, most evolutionists are in the position of the little Hoodlum; for they think that species, *because they "growed," weren't made at all.* But there is a higher and more rational philosophy than either, which holds that the ideas of *making* and of *growing* are not inconsistent with each other—that evolution does not and cannot destroy the conception of, or the belief in, an intelligent Creator and Author of the Cosmos. This view combines and reconciles the two preceding antagonistic views, and is therefore more comprehensive, more rational, and more true. But let us not fail to do justice—let us not overlook the fact that the most important and noblest truths are overlooked only by the Hoodlum and Materialist. *Of the two sides of the shield, the little Innocent and the Pietist sees, at least the whiter and more beautiful.*

The end and mission of science, gentlemen, is not only to discover *new truth*, but also, and even more distinctively, to give *new and more rational form to old truth*—to transfigure the old into the more glorious form of the new. Science is come, *not to destroy*, but, aided by a rational philosophy, *to fulfill* all the noblest aspirations, the most glorious hopes of our race. Sometimes, indeed, the change which she brings about may be like a metamorphosis—the useless shell is burst and cast off and a more beautiful and less gross form appears, but still it is always a process of evolution—of derivation. We never shall reach a rational philosophy until we recognize this fundamental truth. The *new* must include the *old*—the old must incorporate and assimilate the new, and

each must modify and be modified by the other. Progress in all things—in geology, in society, in philosophy—is *by evolution and growth;* not by *successive catastrophes* with alternate destructions and re-creations; by derivation, not by substitution. But these modern materialists, while they are evolutionists in geology (they indeed will hear of nothing else); while they be evolutionists also in social progress, are, strange to say, catastrophists in philosophy. They would raze all previous beliefs, faiths, philosophies, to the ground, and leave not one stone upon another; and then, out of entirely new materials furnished by themselves, they would erect another and entirely different philosophy. They reverse the old dogma, "Whatever *is*, is right," and make it "Whatever *is*, is wrong."

The great bar to the speedy establishment of a rational philosophy is dogmatism, self-opinion, self-conceit. The rarest of all gifts is a truly tolerant and rational spirit. In all your gettings, gentlemen, be sure you get this, for *it* alone is true wisdom. But do not imagine, however, that all the dogmatism is on one side, and that the theological. Many indeed, seem to think that theology has a *pre-emption right* to dogmatism. If so, then modern science has "*jumped the claim.*" Dogmatism has its roots deep in the human heart. It is born of narrowness and pride. It showed itself first in the domain of theology, only because *there* was the seat of power. In modern times, therefore, it has gone to the side of science, because here now is the seat of power and fashion. There are, then, *two dogmatisms*, both equally opposed to the true rational spirit, viz: the old theological and the new scientific. The old clings fondly to old things, only because they are old; the new grasps eagerly after new things, only because they are new. True wisdom and true philosophy, on the contrary, "tries all things," both old and new, "and holds fast only to that which is good and true." The new dogmatism taunts the old for credulity and superstition; the old reproaches the new for levity and skepticism. But true wisdom and philosophy perceives that they are both equally credulous and equally skeptical. The old is credulous of old ideas and skeptical of new; the new is skeptical of old ideas and credulous of new. Both deserve the unsparing rebuke of all right-minded men. The appropriate rebuke for the old dogmatism has been put in the form of a bitter sneer in the mouth of Job—"No doubt *ye* are the men, and wisdom shall *die* with you." The appropriate rebuke for the new dogmatism, though not put into the mouth of any ancient prophet ought to be uttered. I will take upon me to utter it here. I would say to these modern materialists, "No doubt ye are the men, and wisdom and true philosophy were *born* with you!"

Prof. LeConte was listened to with deep interest, and frequently interrupted by warm applause. At the conclusion of his address, a vote of thanks was moved and carried, and a copy of the address requested for publication. A vote of thanks was also tendered Mrs. White for her excellent rendition of her selection.

The Association then adjourned to Friday, at 10 A. M.

IN GENERAL CONVENTION.

FRIDAY, 10 A. M.

The Committee on Nomination of Officers for the ensuing year reported as follows:

Nomination of Officers.

OFFICERS FOR THE ENSUING YEAR.

President.....John Swett

Vice-Presidents.....F. M. Campbell, Albert Lyser, E. T. Blackmer

Secretary.....E. W. Davis

Treasurer.....L. J. Chipman

Executive Committee—A L. Mann, J.

C. Ruddock, C. H. Allen, S. G. S. Dunbar, T. H. Steel, Mrs. J. C. Carr, J. C. Gilson, John Swett, E. W. Davis.

On motion of Supt. Augustine, the Secretary was unanimously requested to cast the vote of the Association for each of the nominees in the order named. He did so, and they were then declared elected.

The discussion on the Report of the Committee on Industrial Education was then declared in order.

Mr. Swett said that, as his report was not intended for adoption by the Association, he would move that it be laid over until their next meeting. This motion was carried.

PROF. A. W. OLIVER, of the Gilroy High-School, was then introduced, and delivered the following address on

The School of the Future.

ITS SPIRIT AND SCOPE.

Our scheme of common school education is based upon the axiom that a government which withholds the elective franchise from no class of its citizens, must provide for the education of its youth, that the sacred right of the ballot be not perverted. When ignorance and superstition have settled like a pall upon the masses, blunting all their noble sensibilities and blinding them to their true interests, and not till then, does it become possible for demagogues to lead them by thousands, and to turn the power vested in them by right of citizenship, into an engine hostile to the very spirit of republican institutions. As every generation is remarkably prolific of ambitious and corrupt leaders, it follows that, just in proportion as ignorance and superstition and their hideous offspring secure control of the ballot, just in that proportion do the pillars of government totter upon their unsteady foundations.

* * * * * * *

The proposition to cut down the scope of common school education is a blow aimed only at the poor and lowly. It is *not* true that those who have learned to read, write, and cipher, and have mastered a little geography and a little history have an equal chance in life, with those who have had a thorough mental training. It is not true that, if a child be grounded in the first rudiments of education, he will, if he have the natural talents, always make his own way afterwards. The observations of our best teachers prove that, in thousands of cases, talents of the highest order have lain dormant far past the age where some of our modern Solomons would place the limit of free education.

Even the *self-made* men, of whom we hear so much, have had, with a few remarkable exceptions, what are equivalent to schools—the best of books and the best of instructors. It is their own innate conceit, and the hero-worship, accorded to *self-made* men by the unthinking multitude, that prompt thousands to assume the glory of their own creation. For every truly self-made man there are hundreds who remain for life in the ignorance in which they were bred. The one becomes conspicuous from his very rarity; the hundreds are hid forever from the public gaze in the great sea of ignorance, superstition, and vice.

The right to a free and liberal education has descended to the toiling masses, and no one may take it from them. It has been bequeathed to them by the charter of liberty, for which their fathers fought on many a bloody field. This right becomes a sacred duty, which the State owes to those whose shoulders support the burdens of taxation, and whose good right arms defend that State from every foe. Any other policy respecting education under such a government as ours, is certain national suicide.

The statesman, who, searching for the causes of the late startling uprising of

thousands of laboring men throughout our Union, fancies he discovers them lurking in a scheme of common school education, educating the masses above their social standing, and sowing among them the seeds of discontent, mistakes a few extensive symptoms for the real disease that is preying upon the vitals of the nation. If to the lower extremities of society he apply the blister of fewer educational facilities, instead of quieting the "body politic," he will arouse a spirit that can be controlled, if controlled at all, only when the cruel arm of military despotism is stretched out over a spiritless, debased, and enslaved people.

Our Government rests upon the spontaneous loyalty of a contented and happy people. That loyalty among the masses finds its perpetual inspiration in the fact that, under our institutions, as under no others on earth, are the great highways of travel open from the lowest to the highest grades of society. Here, in great social or political caste, interposes an impassable gulf to the eager aspirant in the lower walks of life. Upon the floor of our public school-room, as no where else in our favored land do the children of the rich and the poor meet upon a common level. There the sturdy urchin with bare feet and patched breeches frequently carries off the honors from him who has become enervated through the foolish indulgence of wealthy parents.

So long as our grand system of public schools keeps open the great thoroughfares of social and political preferment, just so long may the poor man whose children are invited to enter these highways be relied upon to interpose his manly breast to every foe of our country, from within and from without. As our nation consists principally of the poor, whose chief possessions are their children, in whom are centered their affections and their hopes, our common school system, in its present system and scope, constitutes the very bulwark of our Government. It is indeed its pillar of cloud by day, and its pillar of fire by night.

A scheme of popular education that shall withhold from the sons and daughters of the poor all but the mere rudiments of knowledge practically makes the talented children of the lowly the servants of such as are infinitely beneath them in mental capacity; and this, forsooth, because the latter are born to an inheritance of money, no matter how dishonestly acquired. Such a measure, by making intellectual culture a mere question of wealth, would, through a literary caste, inevitably beget and foster every other species of caste—a condition as hostile to republican government and to all true progress as the unyielding forms into which Hindoo social and political life has been crystallized for ages. Let this insane proposition become a law, and bigoted churchmen, whose denominational zeal has far outstripped the Christ-life within them, will leap for joy; for then they can gather into their parochial and sectarian schools all their youth, and bind about their interests the napkins of their own narrow and wretched dogmas.

The tongue that meanly assails the few rights of the laboring masses, may it cleave to the roof of the mouth; the arm stretched forth to pluck a single pillar from the grand temple of popular education, may it wither from its socket. In the spirit of those whose genius created and whose wisdom has guarded from every attack this noble edifice, we may add to its fair proportions; but unless the highest type of modern civilization is now to turn upon its track, plunging the multitudes into the ignorance and superstition of priest-ridden serfdom, the spirit and scope of the School of the Future must never be less—they may be greater—than the spirit and scope of the school of the present.

COURSE OF INSTRUCTION.

With reference to the just spirit and scope of common school instruction, the members of our profession are almost a unit ; but as to what should constitute the great body of our school course perhaps no two educators would exactly agree. Fortunate it is for the cause of true educational progress that it is possible, without incurring the charge of disloyalty to the grand system, to question the authority that first prescribed, and the wisdom that still retains just so much grammar, history, geography, etc., as the very best agent for mental discipline and a thorough preparation for the duties of life.

What mysterious change occurs in the child at the magic age of six, that warrants us in imprisoning, so many hours a day, from that time on, the little hands and feet, that a healthy instinct of development has thus far kept in constant motion during all but the hours of sleep? The rapidly-growing limbs require that perfect circulation of blood, that exercise alone can impart. This exercise a free, healthy child is impelled to take by the divinely implanted instinct of development. Three or four hours a day of enforced quiet, the growing limbs in a position unfavorable to free circulation, will tell disastrously upon the health and growth of the feeble ones; even the most rugged will never reach the physical strength, vigor, and symmetry which might have been theirs had their natural instincts to be doing something with real things, not been sacrificed to the requirements of an artificial and cruel system of child culture.

Under the most favorable conditions of ventilation the air in a school-room of average size is far from pure. Sixty children, packed, as they frequently are, into an area of four hundred square feet, are inhaling noxious vapors from three to five hours a day. The process of poisoning in this way is, unfortunately, so gradual that we do not notice the steadily waning vitality of the children. If pure air were white, and carbonic gas black, how we would snatch our darlings as from the jaws of a monster, as we detected the death-laden vapor stealing noiselessly towards them. Breathing impure air poisons the blood, lessens vitality, and renders the child an easy prey to every disease. The germs of the fatal fever are, in thousands of cases, sown by inhaling carbonic gas charged with decaying animal matter, and the doctor, the undertaker, and the grave-digger reap some of the ghastly fruits of false economy in the size of our school-rooms and the number of our teachers.

The waste of real force, on the part of both the educator and the educated, by our present artificial method, is simply enormous. If the youth in our public schools were not furnished with a mental pylorus of extra size, he would certainly be smothered to death by the vast mass of unassimilated facts, dates, names and figures that we are expected to pour into him. This pouring-in method of instruction is analagous to the efforts of a man to fill a cask with molasses by pouring it in at the top, while the liquid is escaping from the bottom in a stream nearly as large as that which enters from above. Could we close the mental safety-valves by which our children discharge the greater portion of what we are required to put into them, we should soon have no casks to fill ; they would all be burst asunder.

A very large portion of our instruction, especially in the lower grades, is of such a character that it cannot assimilate with the child's mental constitution. Very much is memorized as the parrot learns the words in its vocabulary. Even the most thorough teachers are often amazed to discover how much to them unmeaning language is stowed away in the minds of even their

most advanced pupils. Rules and principles, committed to memory merely as sounds and forms, are constantly clogging the reasoning faculties, blunting the mental perceptions, and retarding intellectual growth. This unnatural and worthless load, besides occupying the room that belongs to valuable knowledge, weakens the mind, destroys originality, and often proves too much even for the vigor and elasticity of youth. Mental indigestion and dyspepsia react in turn upon the body, filling it with disease, and robbing life of its beauty and joy.

Youth is the period of exploration and discovery. For it the world of material things is yet an unknown land, teeming with golden mysteries. If during this time the mental forces are habitually spent upon mere abstractions, the natural process of education is reversed. The youth, robbed of the joys that ought to pour into his soul, through his five trained avenues of sense, goes to work with the scanty material already in his possession, and his manhood is dwarfed from the want of that very knowledge that ought to have been acquired in youth. Under such unnatural culture, is it strange that thousands of our graduates find themselves, on leaving school, strangers in a world in which they have been born and bred, and utterly unable to earn their own living? The teachers most successful in developing original, self-reliant pupils are those who take them out of the old ruts of a prescribed course, and familiarize them the most thoroughly with the requirements of that life which they are soon to enter. Such instructors are successful, in spite of the present artificial method. How much more could they accomplish if left free to follow a course of child-culture in harmony with nature and common sense!

From the crowded public nursery of the eighth grade, where sixty or seventy six-year-olds are being crammed with arbitrary signs representing things they have never seen, up to the first grade, the instruction is chiefly abstract and metaphysical. The main object seems to be, not to furnish the child what he will most need in after life, but to fit him for the next higher class. Our young men, who have spent within the walls of a thoroughly graded school nearly the half of an average human life—are they now fitted for their chosen work? Our young women—have the long years of patient study prepared them to fill and honor the station to which nine-tenths of the sex are called? With the exception of one-fiftieth, who will guide the next generation through the same unsolved mysteries of a thoroughly graded school, and another small fraction, who will constitute the ministers, lawyers and doctors of the future, these youth have generally been educated *away from* rather than toward their destined employments. Marvelous to relate, these young men and women are only being "educated" here. After this they will have to receive in special schools special instruction for their special vocation in life. It is difficult to conceive how, under our present method, better results can be realized than are being accomplished by many of our public schools. It is only against the methods of instruction that we enter our solemn protest. They are unnatural, artificial and unreasonable. They destroy originality, by taxing, in thousands of cases, all the child's mental vigor in committing to memory the thoughts of others.

The teacher is not to be blamed. The school law, the prescribed course, and the multitude of books leave the teacher little margin for the exercise of his own judgment. He sits as a humble instrument under the shadow of this gigantic system, doing the bidding of a law that he had no hand in framing. Some means must be devised for applying the brakes of common sense to the wheels of this great car of

Juggernaut, and for rolling it, not over the minds and bodies of our youth, but out upon the King's highway of true physical, mental and moral development, natural, symmetrical and divine.

If the eye be ever trained to critical observation and the hand to skillful manipulations, it must be in childhood and youth, before the one has acquired the pernicious habit of seeing without perceiving, and the other has, from long disuse, acquired an awkwardness that no amount of subsequent training can ever completely correct. The imperative demands of modern society and the destiny of the child, as well as his physical, mental and moral natures, point to a plan of common school education radically different from our present one. Work of the hands should seldom, if ever, be divorced in our school rooms from work of the brain. "What God hath joined together, let no man put asunder." The natural instincts of the infant pupil to be constantly doing something with material objects are God-given and infallible guides, and must be respected. The great law of nature, as imperative in the mental as in the physical constitution, that no food must be given for which a healthy appetite has not first been created, must be religiously obeyed. Doing should accompany thinking from the eighth grade up; and the instruction, to be beneficial and permanent, should be such as naturally grows out of the work or the play upon which our children are employed.

If the main features in the Kindergarten system could be Americanized, and substituted for the present course, in our lower grades, the cause of true education would receive an immense impulse, and untold blessings would be showered upon the now devoted heads of our infant population.

The various sciences and their branches should be taught in our schools, not as abstract principles and rules, but in their practical application in the useful and the fine arts. Let a few of the representative arts, such as can most readily be adapted to school training, and such as will best cultivate the senses, and impart manual skill, be introduced, in their proper order, into our higher grades, and we shall have a course of instruction in perfect harmony, both with the child's physical and moral natures, and that will educate him directly toward, and not away from, his destined life work. His senses, keen and alert from constant use, his mind trained to habits of critical observation, master of at least one art or trade, the pupil has, at the same time, under such a course, easily and almost unconsciously acquired a knowledge of these applied sciences vastly superior to that of the great majority of the boys and girls who complete our present course, and graduate with honors.

Thousands of very poor parents in our State are now straining every point financially to carry their children through our long literary course, under the fond delusion that, at its close, those children will find ready and remunerative employment. But the demand in the few professions for which they are fitted has ceased to furnish employment for a tenth of our graduates. The rest, after these long years of toil and expense, have either to fit themselves for some special vocation, or else go to swell the number of those who are trying to get their living by their wits. This, in the sharp competition of modern business life, is no easy thing; and after a vain struggle against the heavy odds of skilled artisans in every vocation, scores of them, with crazed brains and shattered nervous systems, are taken to our lunatic asylums, or else desperately terminate a life that has become insupportable.

By introducing industrial education into our public schools, we shall put into the hands of teachers and parents the means

for determining with accuracy the child's peculiar talents, which, but for this, might have lain dormant, or have been turned into channels for which they were not destined. Thus, to our nation would be saved untold millions, and to the individual a lifetime of misdirected industry.

We must adopt industrial education in our public schools, as the only efficient means of teaching our boys and girls the dignity of honest toil, no matter how lowly. That society in which labor is looked down upon by the ruling classes is rotten, and ready to perish. In spite of all that is spoken and written laudatory of honest toil, it is a sad fact that to-day many of our graduated boys would blush less at being discovered smoking cigars and drinking whisky, on borrowed money, in a drinking saloon, than at being seen assisting at some menial employment the aged father whose scanty earnings had been freely given to feed and clothe, during the long years of school life, the boy whom, he fondly imagined, would be the staff of his declining years. It is too true that, by the almost total neglect of sterling character, in the foolish struggle for merely mental superiority, many of our educated girls would feel less shame at being detected in a falsehood than in being detected by their fashionable classmates assisting in the laundry an overworked mother, whose scanty earnings have been freely given to develop her daughter into beautiful and intelligent womanhood. The moral principles and the productive energies of these humble parents, though they be unable to write their own names, conduce more to the welfare and stability of society than all the expensive, showy and characterless accomplishments of their children. Were it true that free, popular education must necessarily teach our youth to despise the humble toil of their parents, then the sooner our present system is overthrown the better. These pernicious fruits of a false culture will disappear when intellectual training, instead of absorbing the entire attention of the profession, shall assume its proper position as the handmaid of more important agents in the true method of child culture — physical and moral education.

If the race is ever to be redeemed, that redemption must begin with the physical and moral training of our children. If we, as parents, must, by reason of transgression, lay our own carcases in the "Wilderness of Sin," having obtained but a glimpse of our goodly inheritance, let us, for the love we bear our little ones, so train them in our public schools as to bring out, fresh and beautiful, the divine image, and thus enable them to go in and possess the land. Our "Promised Land" lies neither beyond the Hebrew's Jordan, nor the mystic Jordan of Death. The whole earth, which is bristling with threats and penalties for the violators of physical and moral laws, becomes the very "Garden of Eden" to him who has learned to rule his own body and spirit, and who loves his neighbor as himself.

If we would the most rapidly improve the physical condition of our race; if we desire to see society leavened by the principles of industry, honesty, temperance, frugality, humility, virtue and brotherly love; if we would usher in the golden age when a man's conscience will be more reliable than a patent bell-punch, and a presidential elector or member of Congress would live in poverty and die in obscurity rather than sell his principles or his constituents, even for millions, we must, in the School of the Future, teach real things, rather than books. Hygiene and moral science—health of body and health of soul—must be inculcated from infancy through the whole course.

At the conclusion of this address the Committee to Suggest a Course of Study for Grammar Schools presented the following Majority and

Minority Reports, which, on motion of Mr. Swett, were received and laid over for consideration until the next meeting.

Majority Report.

GENTLEMEN AND LADIES: Your Committee, to whom was referred the subject of "A Course of Study for Grammar Schools," with instructions to prepare resolutions thereon, beg leave to report the following, as expressing the sense of this Association:

Resolved, first, That the course of study for our common schools, including the Primary, Intermediate and Grammar grades, should be so arranged as to form a unit in itself, and that the full completion of this course should be recognized by graduation from the grammar school. Also, that this course should be prepared and taught with little or no reference to the fact that a few of these pupils will probably attend some higher grade of school, but rather recognizing that more than ninety per cent. of the children of California never go beyond the grammar grade.

Resolved, second, That too much time is usually employed upon non-essential points of Grammar, Arithmetic, Geography and History, and that teachers do not, as they should, exercise that most necessary power of "selection," which would enable them to do *well* the essential parts of these studies, and to leave undone, or as mere matters of general information, those parts which are not important.

Resolved, third, That the time now unprofitably used upon these subjects should be devoted to:

(*a*) More careful training in Reading and Penmanship.

(*b*) More instruction in Drawing and Music.

(*c*) More and better oral instruction in Natural Science and the science of common things, especially the subjects of Physiology, Entomology, Botany and Natural Philosophy.

CHARLES H. ALLEN,
GEORGE BROWN,
E. K. HILL,
Committee.

Mr. Lyser in presenting the Minority Report, said he had but one fault to find with the report of the Committee. It was not sufficiently clear and explicit to suit the demands of our schools and of our people. If it be conceded that any change in our present course of instruction is necessary, he for one wished that change to be indicated in terms too clear to be mistaken. He objected to glittering generalities, and therefore presented this Minority Report, as a clear and definite outline of what is required of a course of study for Grammar Schools.

Minority Report.

TO THE ASSOCIATION OF TEACHERS: The minority of your Committee, to whom was referred the recommendation of "A Course of Study for Grammar Schools," to be adopted by this Association, have the honor to submit to your body the following report:

I. The quantity of Arithmetic should be decreased by the elimination of such principles as Alligation, Progression, portions of Compound Numbers, etc. We recommend for a small portion of the work eliminated the substitution of the Metric System.

II. The entire elimination of technical Grammar and Word Analysis from the school course below the grade of high schools.

III. We believe that too much is attempted in the subjects of Geography and History in our grammar schools. We recommend, therefore, that at least one-half the work in these branches be cut out.

IV. To take the place of a part of the technical Grammar eliminated, we recommend that instruction be given, from the lowest to the highest grade in the grammar school course, in Physiology and Hygiene.

V. For Word-Analysis, we consider the elements of Physics and Botany useful substitutes, and far more essential in a logical system of education.

VI. We recommend that the principles of Political Economy and the Science of Government may well be substituted for

much of the unimportant and unmeaning mass of dates and facts which now comprise the greater portion of the course in History.

Respectfully submitted by

ALBERT LYSER,

Of your Committee on Grammar School Course.

JOHN SWETT then delivered an able and valuable address on "SCHOOL-TEACHERS AND SCHOOL-TEACHING."

A copy was requested for publication, but Mr. Swett stated that the future purposes for which the address was designed precluded its present publication. This is to be regretted, as the address is one of the ablest contributions to the educational literature of the day, and fully sustains Mr. Swett's high reputation as a great educator.

Considerable discussion ensued relative to the time and place of holding the next Annual Session of the Association. The matter was finally referred to the Executive Committee, with instructions to report immediately.

A vote of thanks was returned to Mr. Swett for his address, also to Prof. Oliver for his able paper.

PROF. A. H. MCDONALD, of the Sacramento Grammar School was introduced and delivered an address on

The Metric System.

MR. PRESIDENT AND FELLOW-CITIZENS :—

I desire to say a few words in behalf of the metric system, not so much in explanation of it, as to urge the necessity of teaching it, and of recommending its exclusive use in our nation.

It is entitled "The International Metric System of Weights and Measures." It is now international, as nearly thirty nations have adopted it, including all the civilized nations except Russia, England, and the United States. These three have legalized its use. It is being rapidly introduced into this country. Efforts are being put forth all over the country to request Congress, in the near future, to make its use compulsory.

It is the most practical system of computation for many reasons. One is, that it is in strict accordance with the Arabic notation, and being entirely decimal, does away with complicated common fractions, which enter so largely into present calculations. The system is the most accurate, consistent, and convenient one known. It is as much simpler than others as our money is simpler than pounds, shillings, and pence. Instead of the long and intricate processes of reduction ascending and descending, we multiply and divide by simply shifting the decimal point to the right or the left. There are no tables, scales, or complicated relations as in the old system, the multiple ten being the same as in simple numeration. How complete beside the present method! Take, for example, long measure; we find instead of the uniform 10 in in the metric system, that the first is 12, and following this are 12, 3, $5\frac{1}{2}$, 40, 8, 69 1-6.

The names used in the metric system are objected to by many persons, but they are not difficult to learn, and, with few exceptions, are already familiar to us by their use in many derivative words in our language.

The unit of measure, the meter, is made the base of all the other units of weight and capacity. The length of the meter is $\frac{1}{10,000,000}$ of the distance from the Equator to the Pole. The exact length was determined by scientists and accurately marked on platinum bars, copies of which are deposited in the archives of civilized nations east and west.

The whole system is composed of twelve terms, using only ten in ordinary computation. It is in strict accord with our currency, as the sub-multiples are derived in the same manner and practically use the same words. In our currency the sub-multiple is used as a prefix, and is prefixed to the unit of measure, weight, or capacity

as the case may be. In currency we use the term "dime" for one-tenth of a dollar; in the metric we say "deci-meter," meaning one-tenth of a meter. In currency we say "cent;" in the metric, centimeter. In currency we say "mill;" in the metric, milli-meter. These three terms are derived from the Latin, and mean one-tenth, one-hundreth, one-thousandth respectively. The multiples are derived from the Greek, and are Deka, ten; Hecto, one hundred; Kilo, one thousand; Myria, ten thousand. These prefixed to either of the units required express the exact measure or quantity desired.

One particular reason for selecting the multiple and sub-multiple prefixes from the Greek and Latin, is that they are languages that will not undergo any more changes. Whereas, modern languages are liable to, and in fact do, change often, so that in time the word may not express the exact meaning it had when first used.

As before stated, its use was legalized by Congress in 1866, and its exclusive use is now urged by very many of the most intelligent of our land. In 1876, the American Metric Bureau was established in Boston, to disseminate information concerning the metric system, to urge its early adoption and to bring about actual introductions wherever practicable. It is used extensively by the United States Coast Survey, the greatest of our public works. It is used in the most important laboratories of our colleges. It is used altogether by our analytic chemists, and by of our most noted physicians, and by all who have dealings with foreign countries. The decimal subdivision of the foot is used by all engineers.

That the metric system will become the exclusive system of our country is inevitable, and is simply a question of time. We shall never be much better prepared to make the change than now, unless the teachers of this State, as well as of all the States, put forth every effort to educate the masses and prepare them for the change. The youth must be instructed in the system, and they in their turn will become missionaries to every household, to parents, and friends.

Every teacher should understand the system himself, and then, by the aid of a few metric articles explain the units of measure, weight, and capacity. The meter, the unit measure, may be easily explained by a school meter, which, on one side, shows the meter; on the other side, in alternate colors, the deci-meters; on the third side, the centi-meters; and on the fourth side, the milli-meters. The ten-fold meter, each fold being just a deci-meter, and costing but five cents, is an excellent article in the hands of pupils. It will give a better and more intelligent idea of the meter than abstract teaching without an object. There are also other metric articles which the American Metric Bureau has succeeded in furnishing at lower rates than corresponding articles of the common measures, can be purchased, for such as the 30 c. m. rule, about a foot in length, for desks, costing but five cents, tapes, etc.

To speak of measurements in meters, instead of yards or feet, will be a very practical way of teaching. The next step shows the science or philosophy of the system. The decimeter was selected as the base from which the "liter," the unit of capacity, was to be formed. A cubical vessel whose inside edge is a decimeter in length, width, and depth, contains a liter. There is but the one measurement for either dry or liquid, wine or water, beer or milk. The next sub-multiple of the meter, "the centimeter" was selected as the base from which the "gram," the unit of weight was to be formed. A cubical vessel whose inside edge is a centimeter in length, width, and depth, filled with water at

4° centigrade will weigh a "gram." It will be seen that by the meter as a base other units can be readily procured if lost or inaccessible. Our present method has no system. No relationship exists between the yard and the gallon, nor between the gallons and the various pounds. Learned commissions and committees after due examinations have concluded that a whole year will be saved in the school-life of every child attending the public schools. That our forefathers should with reluctance change the old system of currency for one not well tested is not to be wondered at, while it is a matter of astonishment that a people who pride themselves on their progressive ideas and their labor-saving machines, should be so reluctant to adopt a system that has been fully tested and proved to be what it claims.

Again, reminding my fellow-teachers that upon us more than upon any other class devolves the duty of presenting this system in such a light as will secure its speedy and exclusive adoption, I will conclude by repeating a single sentence that contains the entire system, viz: "Measure all lengths in meters, all capacities in liters, all weights in grams, using decimal fractions only, and saying deci, for tenths; centi, for hundredths; milli, for thousandths; deka, for ten; hekto, for hundred; kilo, for thousand, and myria, for ten thousand."

Miss Irene Hardy, of Oakland, who had prepared a paper on "Reading," was requested to furnish a copy for publication.

A motion was made and carried that a Committee of Three be appointed to secure the publication of the proceedings of the Association, this Committee to have power to act. Messrs. Crowhurst, Campbell, and Gilson were appointed.

The Committee on Resolutions then brought in the following report, which was adopted:

Resolved, first, That we fully appreciate the interest manifested by our chief executive, Governor Wm. Irwin, in the work of the Association, and that we tender our thanks to him for his very able and interesting address.

Resolved, second, That the thanks of this Association are tendered to John Swett, Dr. Fisk, Prof. Joseph Le Conte, and Bernard Moses, Wm. White, W. E. Price, Gerhard Shoof, Emma Marwedel, Jeanne C. Carr, Irene Hardy. A. W. Oliver, and President A. L. Mann, for their addresses and reports before this Association.

Resolved, third, That the thanks of this Association are hereby tendered to the School Board of Sacramento for the use of the High School building for the meetings of the Association.

Resolved, fourth, That we tender our thanks to A. L. Mann, President, and A. Lyser, Secretary, for the acceptable manner in which they have performed their arduous duties.

The following additional resolution was presented and unanimously adopted:

Resolved, That the PACIFIC SCHOOL AND HOME JOURNAL is hereby adopted as the organ of this Association.

The Executive Committee then made the following recommendation in regard to the time and place of the next annual meeting: "That this Association meet in Oakland, at 10 A. M., Thursday, January 2nd, 1879, and continue in session Thursday, Friday, and Saturday.

The recommendation of the committee was adopted, and the State Association then adjourned.

THE PACIFIC
SCHOOL AND HOME
JOURNAL.

ORGAN OF THE
STATE BOARD OF EDUCATION,
For the Publication of its Proceedings.

VOL. II. SAN FRANCISCO, DECEMBER 3, 1878. No. 12

A LEARNED WOMAN.

BY PROF. GEO. W. MINNS.

[Concord, Mass.]

No. III.

The Ripley mansion, in Waltham, and afterwards in Concord, was a delightful place to visit for all who were privileged to be guests. Learned professors from Harvard, ministers from far and near, members of the learned professions who had been her pupils, all gladly came to the hospitable dwelling. I did not attend these symposia of my elders, but I often heard the buzz of their animated conversation—and what pleasant parties they must have been, what ambrosial nights fondly remembered by those who enjoyed them, as actors or spectators. Mrs. Ripley delighted in the society of men with ideas, of bright and original thinkers and enjoyed all good wit and humor. She particularly relished the sallies of a Dr. Dana, a noted humorist of the town. I once heard her say, with a bright flash in her eye, "I am going to have a royal time to-night; Dr. Dana is coming. I shan't say a word, but I shall sit and laugh all the evening."

In 1846, the Ripley family left behind them the cares of parish and boarding-school, and removed to Concord, to the "Old Manse," made famous by Hawthorne, in which Mr. Ripley's father had lived for more than sixty years, as the minister of the town. Mrs. Ripley, now fifty-three years of age, doubtless looked for-

ward to her residence in Concord as a time when she could be free from care and anxiety, and when, after her laborious life, she should enjoy the much needed rest and recreation. And for a short time her life was peaceful and happy. But then came affliction after affliction in rapid succession—the instant death of her husband, in his carriage, as he was bringing the last installment of children from the depot home to Thanksgiving; the death of a married daughter; of a beloved son-in-law; of a sister; of her youngest son, who gave his life to his country during the Rebellion. Many of Mrs. Ripley's former pupils and the sons of her friends and pupils were in the army, and she sympathized with their kindred in their anxiety. She says, "I am no Spartan mother, and such a tale as that of young Putnam [killed at Ball's Bluff] and his desolate mother breaks my heart." All these events and anxieties laid a most heavy burden upon her loving and tender heart. "Would to heaven," she writes, "that the lives of the dear ones that remain could be insured to me till the end of my own life."

Mrs. Ripley's mind, a keen and analytic one, found more difficulties in accepting some received opinions upon religion than it could meet. She could not believe merely because she desired to believe, but wanted sound reasons for her faith. Let us not forget that she earnestly sought the truth; she prayed for light, and declared that there were moments when she would exchange minds with the humblest being that calls for his Father and has never doubted.

Writing to a life-long friend, she says: "I would not weaken the faith of the poorest, the most contemptible, the most hateful fanatic that bears with me a common nature. Without faith, creation is a blank, its wonders and its glories a cipher without a key, and thinking, feeling man, is of all beings most miserable. *You* are fixed on a rock, and I talk with you to find its basis."

This extract will show what a sweet and natural piety she cherished: "Religion has become a simple matter to me—a yearning after God, an earnest desire for the peace that flows from the consciousness of union with Him. It is the last thought floats through my mind as I sleep, the first that comes when I wake. It forms the basis of my present life, saddened by past experience. It bedims my eyes with tears when I walk out into the beautiful nature where love is all around me. And yet no direct ray comes to my soul. Perhaps it is God's peace instead of God I seek; so I sit and wait in patience for his grace, and will still wait. Earnests and foretastes come; but humble waiting in days of darkness will, I trust, bring better fruits."

Her mind was so inquisitive and thoughtful that she could not but be displeased with the shallowness of much that passes current in the name of religion; but she never dogmatized, and so she always heartily sympathized with others in their faith and in their good hopes and expectations. If she could not agree to their creed, she said it was because "she was so made." She was in harmony with whatsoever was most good, most true, and most spiritual. Her own soul rested profoundly in the conviction of the goodness of God, and that under his dispensation all is well. "I recognize," she writes, "my obligations to Christianity as the chief factor in the product of my present mind. The germ of intuition lies buried in every soul; the inspired man speaks, and it responds. Watered in youth by the silent dews of his divine utterances, warmed by his image, or the faint reflection of it, in the lives of those we love and trust, holy intuitions unfold in foliage, too often unconscious of the secret source by which they live. A miracle, in the popular sense, my

mind rejects. Cannot we love and disagree?"

I suppose she neither believed nor disbelieved in the immortality of the soul. She earnestly desired to believe it, but she did not think hopes or wishes to be a test of truth, and she saw that this doctrine cannot be established by argument. Having attended the funeral of a friend, she said: "The grief of his children is worth all the sermons on immortality I ever heard." She writes to an old friend: "Ere long we shall be called to set our houses in order and go, we know not whither. But death is as natural as birth, and faith makes it as full of promise. But I have not your faith to console me; faith, alas! is denied to certain minds, and submission must take its place. The Unknown, which lighted the morning of life, will hallow and make serene its evening. Conscious or unconscious, we shall rest in the lap of the Infinite." At another time: "Do not the starry heavens in pure splendor seem a fit canopy only for *believing*, loving souls? O that a direct ray from their Maker might come to my spirit!"

"Walking with Waldo Emerson in Concord," she says, "I told him I thought the soul's serenity was at best nothing more than resignation to what could not be helped. He answered: 'Oh, no; not resignation; *aspiration* is the soul's true state. What have we knees for? what have we hands for? Peace is *victory*.'" What thrilling words! How full of meaning! As, with the sound of a silver trumpet from heaven, they rouse the soul to fight the *good* fight. They must have been cheering words to Mrs. Ripley in her despondency.

There are thousands of people who never think at all on religious subjects, but who accept implicitly the faith of their parents or minister. Such never doubt, and condemn all who do. Mrs. Ripley knew very well that these minds are not troubled by religious questions, because they are incapable of reflecting upon them, or, if they are, in some measure, able to consider them, that they prefer acting upon the maxim—

> "Where ignorance is bliss,
> 'Tis folly to be wise."

And yet at times she almost envied them their alleged undoubting faith. Her own mind, on the contrary, was so active and searching that she could not help pondering these questions, the most interesting to every human being, and those which she could not solve she did not pretend to decide. She was true to her own nature; she was sincerity itself, and therefore could not assent to doctrines which she did not believe; and whatever she said upon such subjects was uttered gravely and earnestly, and every hearer felt he had the honest, genuine sentiments of the speaker.

There have been of late, at home and abroad, many religious discussions upon the question of the immortality of the soul. Men and women—more, perhaps, than we think—of the highest character are at this moment distressed because they cannot feel assurance that life for them and all mankind does not terminate at the grave. Mrs. Ripley shared in these doubts, which were caused I think, by the peculiar character of her mind, and by her humility. Like some of the best Christians at times, and like most of us at periods that perhaps come too frequently, she could not declare her conviction that she, a frail and insignificant creature of an hour on earth, should live forever. And so she sought, and without doubt obtained, peace in resignation to the divine will, whatever it might be. Her principles were the essence of true religion—"Thy will be done," in which, Whittier says, might well be merged all prayers—love and charity for every fellow-creature, and the simple trust in the heavenly which a child

has in the earthly father. Was not this receiving the kingdom of God like a little child? The names of such meek, pure, faithful, unselfish spirits, truly religious, without knowing it, whom Christ himself blessed, may, when written down by the angel, like Ben Adhem's name, "lead all the rest."

"To do thy will is more than praise,
As words are less than deeds;
And simple trust can find thy ways
We miss with chart of creeds."

Her last letter ends with these beautiful words: "Oh, how I count the days till the dear little fellows" (her grandsons) "will be here! I have plans for their amusement. I hope they will have a good time. Every day will bring a flower. How pleasant it will be to be with you and the dear ones! I shall live another life. I may be childish, but there are no limits to love."

Gradually failing strength brought now a short eclipse of her intellectual powers. She remained at Concord, in her daughter's house, and there, in the arms of her children, in the summer of 1867, she fell asleep, at the age of seventy-four. She carried with her beyond these shores of anguish and doubt the love of a thousand friends, and the enduring record of a well spent life. The night after she was brought home to the "Old Manse," dead, one of the tall ash trees in the front avenue fell, and in the morning lay prostrate on the ground; it was like a hint of sympathy in nature. She was buried in the beautiful cemetery of Sleepy Hollow, at Concord. On the stone which marks her grave her children placed an inscription containing a part of the passage with which Tacitus ends his Life of Agricola. The whole passage was specially dear to her. Many of her scholars recall the fine glow of feeling with which she read or quoted it, and to these it will always be associated with her memory.

I cannot describe the feelings with which, on a Sunday afternoon of last autumn, I stood at her grave. When I had last seen her, she was in good health, and in full possession of her vigorous intellect. I had wandered far, and now, returning, I looked down where rested the earthly remains of her who had been to me the most beloved of teachers, the kindest and best of friends. I remembered the many happy hours I had been privileged to enjoy in her society, her inspiring words, the glow of enthusiasm which irradiated her face at every noble or beautiful passage, the charm and easy flow of her conversation, her sweetness, gentleness and inexhaustible patience. As I read the noble words inscribed upon her tablet, I seemed to hear them uttered again by her voice, and my heart united in the invocation of the Roman historian to the departed spirit:

"Mayst thou call us from weak regrets and womanish lamentations to the contemplation of thy virtues, which allow no place for mourning or complaining. Let us rather adorn thy memory by our admiration, by our praises, though short lived, and, if possible, by an imitation of thy example."

As I turned to depart, the last rays of the setting sun, as they passed from a cloud to the clear horizon, darting through the brilliantly colored leaves, suddenly lighted up the darkness of the grave. So, I thought, have the clouds of doubt vanished from her face, and so is it glorified in the pure light of heaven.

The veil is removed. Here she saw through a glass darkly; there she sees face to face. For Christ has said: "Blessed are the pure in heart; for they shall see God."

The Abbott Academy, Andover, is the oldest of the Massachusetts institutions founded for the exclusive education of girls, and will celebrate the completion of its first half-century early next June.

THE GRAVE.

[Translated from the German.]

BY GEORGE GOSSMAN, M. A.

The grave is dark and silent,
And fearful is its strand,
For with dark veil it covers,
To us an unknown land.

The nightingale has never
Its stilly bosom wooed,
And friendship's roses only
Are on its surface strewed.

In vain lone brides and mothers
Their tears of anguish weep;
In vain do orphans' voices
Beseech its silent deep.

Yet quiet elsewhere seeking
Were equally in vain,
For only through its portals
Our final homes we gain.

The heart with sorrow stricken,
By many cares made sore.
Doth find its only quiet,
Where it doth beat no more.

San Francisco, October, 1878.

Proposed Educational Clauses in the New State Constitution.

The following clauses, among others of inferior note, have been proposed for incorporation in the new State Constitution. At date of writing, the article "Education" has not yet been reached, so it is extremely doubtful which of these clauses are likely to be submitted to the people of the State. We publish them now, so that teachers may compare views, decide on some common plan of action, and exert such influence as they may have on members of the Convention to secure the adoption of the clauses best calculated to supply the needs of our schools and to further educational progress:

Introduced by MR. WINANS, proposition to incorporate the following into the new Constitution, under the Article entitled "Education," and as part of that article.

SECTION 1. A Superintendent of Public Instruction shall be elected by the qualified electors of this State at the same time the Governor is elected. He shall hold his office four years from the second Monday in January next after his election. His duties shall be prescribed by law.

SEC. 2. There shall be elected by the qualified electors of this State, at the same time the Governor is elected, four members of a State Board of Education, one for two years, one for four years, one for six years, and one for eight years, and at each succeeding biennial election there shall be elected one member of such Board, who shall hold office for eight years. The Superintendent of Public Instruction shall be *ex officio* a member and Secretary of said Board. The Board shall have the same pay and mileage as members of the Legislature when in session.

SEC. 3. The State Board of Education shall meet at the Capital of the State, under the call of the Secretary of the Board, on the first Tuesday in February next succeeding their election, and continue in session not longer than twenty days, and annually thereafter for not to exceed twenty days at each annual session. A majority shall constitute a quorum.

SEC. 4. The State Board of Education shall have power to legislate and make rules in relation to common schools and the State Normal School, and perform such other duties as may be required by law. The State Board of Education, in fixing the course of study, shall include the following branches; Reading, Writing, Spelling, Arithmetic, Geography, Grammar, History of the United States, and in the higher classes some manual of government. The proceedings of the Board shall be printed by the Superintendent of State Printing, under the direc-

tion of the Superintendent of Public Instruction, who shall send a copy of said proceedings to each School Trustee and teacher in this State, and have a thousand extra copies printed for citizens generally who may apply for them. Neither the State Board of Education or the Legislature shall enforce a uniformity of text-books throughout this State, but the matter shall be left to local Boards of Education and Trustees of school districts to select suitable text-books, and for such period of time as they may deem best for their interests.

SEC. 5. The Legislature shall encourage by all suitable means, the promotion of intellectual, scientific, moral, and agricultural improvement. The proceeds of all lands that may be granted by the United States to this State for the support of schools, which may be sold or disposed of, and the five hundred thousand acres of land granted to the new States under an Act of Congress, distributing the proceeds of the public lands among the several States of the Union, approved A. D one thousand eight hundred and forty-one, and all estates of deceased persons who may have died without having a will or heir, and also such per cent. as may be granted by Congress on the sale of lands in this State, shall be and remain a perpetual fund, the interest of which, together with all the rents of unsold lands, and such other means as the Legislature may provide, shall be inviolably appropriated to the support of common schools throughout the State.

SEC. 6. The Legislature shall provide for a system of common schools, by which a school shall be kept up and supported, in each district, at least three months in every year, and any district neglecting to keep up and support such a school may be deprived of its proportion of the interest of the public fund during such neglect.

SEC. 7. The Legislature shall take measures for the protection, improvement, or other disposition of such lands as have been or may hereafter be reserved or granted by the United States, or any person or persons, to this State for the use of a University; and the funds accruing from the rents or sale of such lands, or from any other source, for the purposes aforesaid, shall be and remain a permanent fund, the interest of which shall be applied to the support of said University, with such branches as the public convenience may demand, for the promotion of literature, the arts, and sciences, as may be authorized by the terms of said grant. And it shall the duty of the Legislature, as soon as may be, to provide effectual means for the improvement and permanent security of the funds of said University.

SEC. 8. No religious sects shall ever have use of or control any part of the School or University Funds of this State.

Introduced by MR. WHITE, relative to education.

Resolved. That the Committee on Education be instructed to report the following article for the new Constitution of California:

ARTICLE —.

SECTION 1. A Superintendent of Public Instruction shall be elected by the qualified electors of the State at the same time that the Governor is elected, and shall hold his office for the same time as the Governor. His duties shall be provided by law. He shall receive an annual salary of two thousand four hundred dollars, to be paid quarterly.

SEC. 2. The Legislature shall foster by all suitable means the public school system of the State. The proceeds of all lands that may be granted by the United States to this State for educational purposes, or that have been heretofore granted, all es-

tates of deceased persons who may have died without leaving a will or heirs, and also such per cent. as may be granted by Congress on the sale of lands in this State, shall be and remain a perpetual fund, the interest of which, together with the rents of the unsold lands, and such other means as the Legislature may provide, shall be inviolably appropriated to the support of common schools throughout the State, and no part of such fund, or any money raised by taxation for school purposes, shall ever be appropriated to or divided between sectarian schools.

SEC. 3. Instruction in the common schools shall be in the English language, and confined to the following: Reading, writing, orthography, grammar, geography, arithmetic, book-keeping, algebra, geometry, surveying, navigation, and ancient and modern history.

SEC. 4. The Legislature shall provide that no religious books shall be used in the common schools, or any particular religion taught or advocated, and that care shall be taken to guard the rights of conscience of all children attending the public schools.

SEC. 5. The Legislature shall by law provide that none but teachers of unquestioned sobriety and good moral character shall be employed as teachers in the public schools.

SEC. 6. The Legislature shall provide by law that a lecture on the nobility of labor shall be delivered at least once a month in every public school in the State by the Principal thereof, dwelling on its paramount importance in the affairs of men in every walk of life.

SEC. 7. The common schools of this State shall be kept up and supported in each district for at least four months of every year, and the Legislature shall by law provide the necessary funds for doing so.

SEC. 8. Education in the public schools shall be free to all, and each scholar shall be furnished with such school books as his studies require at the expense of the State.

SEC. 9. The Legislature may require by law that every parent or guardian of children under fourteen years of age shall give them as good an education as that to be obtained in the common schools, in cases where they do not send them to the public schools by choice.

SEC. 10. The Legislature shall enact laws for the modification and amendment of the State University, so that hereafter all instruction shall be of a practical character, and confined to all such teaching as shall properly belong to all mechanical arts and sciences, and to all sciences properly relating to agriculture, and no other. The system adopted shall provide that every student shall spend at least two hours every day in manual labor at some mechanical art or in cultivating the ground. The students in attendance at the University shall be entitled to instruction in all studies they may select, consistent with the rules of the University, all necessary books, and board and lodging, free of all charge. The privilege of sending to the University shall be divided between the cities and counties of the State, according to population, in such manner as the Legislature may provide.

SEC. 11. When the University of California is modified, as provided for in the foregoing section, the Legislature shall make such appropriations from the State treasury as they shall deem prudent to assist in its support, and the proceeds of all lands granted by Congress to the State for University purposes shall be properly invested as a perpetual fund for its support, but until such modification is provided for by law no money whatever shall be expended by the State for its support.

SEC. 12. In order that every child in this State may have a fair opportunity to learn the privileges, rights, duties, and ob-

ligations pertaining to freemen, the Legislature shall, by appropriate legislation, cause to be published, at the expense of the State, in one well-bound volume, of convenient size, the Declaration of American Independence, the Constitution of the United States of America, the Constitution of the State of California, and Washington's Farewell Address; and shall cause the same to be distributed, free of cost, to the children in the common schools, and to be used and taught therein as a text-book; and also in the University of California.

Introduced by Mr. H. W. Smith, in relation to religious teaching in public schools.

ARTICLE —.

SECTION —. That no sectarian books or sectarian creed shall ever be allowed in any of the public schools, academies, universities, or colleges in this State.

Introduced by Mr. Blackmer. Amendments to Article Nine of Constitution, relating to education.

Amend Article Nine by introducing the following sections, to wit:

SECTION —. A Superintendent of Public Instruction shall be elected by the qualified electors, at the times and places, in the same manner, and for the same term of office as the Governor. He shall receive a salary equal to that of the Secretary of State, and shall enter upon the duties of his office on the first day of December next after his election.

SEC. —. A County Superintendent of Schools, for each county in the State, shall be elected at the general election for Governor, by a vote of the qualified electors of each county, who shall hold office for four years, but the Legislature shall have power to consolidate two or more adjoining counties into one district of supervision.

SEC. —. The Legislature shall provide for a system of public schools, by which a free school shall be maintained for at least six months, in each school district, every year after the first year in which a school is established, and any school district neglecting to keep up and support such school shall be deprived of its proportion of the interest of the public fund during such neglect.

SEC. —. No public funds shall ever be appropriated for the support, either directly or indirectly, of any religious sect or denomination whatever, nor for the support of any school not under the direct and entire control of public school officers.

Introduced by Mr. Larue, relating to a system of common schools.

Amend section two, article nine, of the Constitution, so as to read as follows:

SECTION 2. The Legislature shall provide for a system of common schools by which a school shall be kept up and supported in each district at least six months in every year. No district shall be deprived of its portion of the interest in the public fund unless through willful neglect to comply with the law.

Introduced by Mr. Blackmer, proposed section to be incorporated into Article Nine of the present Constitution, relating to education.

SECTION —. There shall be a State Board of Education, consisting of two members from each Congressional District, who shall be nominated by the Governor and confirmed by the Senate, for the term of four years. The State Superintendent shall be *ex officio* a member of said Board.

Introduced by Mr. Chapman, on education.

ARTICLE —.

SECTION 1. A Superintendent of Public Instruction shall be elected by the qualified electors, at the same time and place, in the same manner, and for the same term of office as the Governor. He

shall receive a salary equal to that of Secretary of State.

SEC. 2. A County Superintendent of Schools, for each county in the State, shall be elected at the general election of Governor and Superintendent of Public Instruction, by vote of the qualified electors of each county, and shall hold office for the term of four years; *provided*, the Legislature may authorize two or more counties to unite in one district and elect one Superintendent in said district, the same as in the counties.

SEC. 3. The Legislature shall provide for a system of public schools, by which a free public school shall be maintained for at least six months in each school district in every year after the first year in which a school is established.

SEC. 4. There shall be a State Board of Education, consisting of two members from each Congressional District, who shall be nominated by the Governor and confirmed by the Senate, for a term of four years. The State Superintendent shall be *ex officio* a member of this Board.

SEC. 5. The Legislature shall encourage, by all suitable means, the promotion of education among the people. The proceeds of the sales of the five hundred thousand acres of land granted to the new States, under an Act of Congress approved A. D. eighteen hundred and forty-one, and of the sales of the sixteenth and thirty-sixth sections of township lands reserved for school purposes, shall constitute an inviolable school fund, the income from which shall be apportioned by the Superintendent of Public Instruction to each school district, *pro rata*, according to the number of school census children.

SEC. 6. No public moneys shall ever be appropriated for the support, directly or indirectly, of any religious sect or denominational school whatever; nor for any school not under the direct and entire control of public school officers.

SEC. 7. The revenue derived from the State School Fund, and from the State School tax, shall be applied exclusively to the support of primary and grammar schools.

Introduced by Mr. Blackmer, amendment to Article Nine of present Constitution relating to education.

SECTION —. The Legislature shall encourage, by all suitable means, the promotion of education among the people. The proceeds of the sale of the five hundred thousand acres of land granted to the new States under an Act of Congress approved A. D. eighteen hundred and forty-one, and of the sale of the sixteenth and thirty-sixth sections of township lands reserved for school purposes, shall constitute an indivisible fund, the income from which shall be apportioned by the Superintendent of Public Instruction to each county, *pro rata*, according to the number of school census children.

SEC. —. The revenue derived from the State School Fund, and from the State school tax, shall be applied exclusively to the support of primary and grammar schools. In addition to these schools the public school system may include high-schools, evening schools, normal schools, and technical schools, which may be established by the Legislature, or by municipal or district authority.

SEC. —. The funds arising from the sale of any lands or scrip which have been or may hereafter be granted to this State by the Congress of the United States, for any educational purposes whatever, shall forever be kept as separate and distinct funds, to be used, under the control of legislative enactments, exclusively for the purposes for which they were set apart in the several Acts granting the same, any statute law to the contrary notwithstanding.

Introduced by MR. HARRISON, in relation to compulsory education.

SECTION —. It shall be the duty of the Legislature to provide for a system of compulsory education for all children under the age of fourteen, such education to be entirely secular and for this purpose it shall provide for the creation of a special fund, for the purpose of giving such assistance to indigent children as will enable them to partake of the benefits of such system, And also,

SECTION —. It shall be the duty of the Legislature to provide, by appropriate legislation, for the giving of lectures in the State, at least once every week, upon the subject of labor, and its paramount importance in the affairs of men in every walk of life.

Introduced by MR. WICKES, on standard of moral instruction in our public schools.

To article on education.

SECTION —. The standard of moral instruction in our public schools shall be that set forth in the Bible, precluding sectarianism. And also,

SECTION —. The State shall provide for a liberal system of education, ranging from primary to university grade, and embracing the culture of the mind, body, morals, and manners of the child.

Introduced by MR. O'SULLIVAN, relating to education.

Resolved, That the following provisions relating to education should be embodied in the new Constitution :

SECTION —. The Legislature, at the first session after the adoption of this Constitution, shall provide by law for the compilation and printing of a complete series of school text-books, all the necessary mechanical work connected therewith to be done in the State Printing Office. The text-books thus compiled and printed shall be the only text-books used in the public schools of this State after the first day of January, eighteen hundred and eighty-one, and shall be furnished to all scholars in said schools free of cost.

SEC. —. There shall be a Department of Agriculture and a Department of Mechanics attached to the State University. And there shall be suitable professors in said University to give practical instruction in agriculture and the mechanical arts.

SEC. —. Lectures shall be delivered, at stated periods, in the State University, the Normal School, and in each one of the public schools of the State, by one of the professors or teachers thereof, upon the subject of labor, its necessity and importance in the promotion of human happiness.

SEC. —. No sectarian education shall be imparted in the State University, the Normal School, or any of the public schools of this State, and no sectarian books, or books having a sectarian bias, shall ever be used in the State University or the public schools; nor shall any money ever be appropriated for the support of religious or denominational schools.

Introduced by MR. MCCOMAS, relating to education.

Article Nine for a revised Constitution of the State of California — Education. Suggested by T. H. Laine, and introduced by Rush McComas, Delegate from Santa Clara County.

ARTICLE IX.

EDUCATION.

SECTION 1. A Superintendent of Public Instruction shall be elected by the qualified electors of this State at the same time the Governor is elected. He shall hold his office for four years from the second Monday in January next after his election. His duties shall be prescribed by law. He shall receive an annual salary of two thousand dollars, to be paid quarterly.

SEC. 2. The Legislature shall encourage, by all suitable means, the promotion of intellectual, scientific, moral, and agricultural improvement. The proceeds of

all lands that may be granted by the United States to this State for the support of schools, which may be sold or disposed of, and the five hundred thousand acres of land granted to the new States, under an Act of Congress distributing the proceeds of the public lands among the several States of the Union, approved A. D. one thousand eight hundred and forty-one, and all estates of deceased persons who may have died without leaving a will or heir, and also such per cent. as may be granted by Congress on the sale of lands in this State, shall be and remain a perpetual fund, the interest of which, together with all the rents of the unsold lands, and such other means as the Legislature may provide, shall be inviolably appropriated to the support of common schools throughout the State.

SEC. 3. The Legislature shall provide for a system of common schools, by which a school shall be kept up and supported in each district at least three months in every year, and any district neglecting to keep up and support such a school may be deprived of its proportion of the interest of the public fund during such neglect.

SEC. 4. The Legislature shall take measures for the protection, improvement, or other disposition of such lands as have been or may hereafter be reserved by the United States, or any person or persons, to this State for the use of a University; and the funds accruing from the rents or sale of such lands, or from any other source, for the purpose aforesaid, shall be and remain a permanent fund, the interest of which shall be applied to the support of said University, with such branches as the public convenience may demand, for the promotion of literature, the arts, and sciences, as may be authorized by the terms of said grant. And it shall be the duty of the Legislature, as soon as may be, to provide effectual means for the improvement and permanent security of the funds of said University.

SEC. 5. All instruction in the common schools shall be in the English language, and no other language shall be there taught; nor shall instrumental music be taught in them.

SEC. 6. No religious sect or sects shall ever have use of or control any part of the school or University funds of this State.

SEC. 7. In order that every child in this State may have a fair opportunity to learn the privileges, rights, duties, and obligations pertaining to freemen, the Legislature shall, by appropriate legislation, cause to be published, at the expense of the State, in one well-bound volume of convenient size, the Declaration of American Independence, the Constitution of the United States of America, the Constitution of the State of California, and Washington's Farewell Address, and shall cause the same to be distributed, free of cost, to the children in the common schools, and to be used and taught therein as a text-book, and also in the University of California.

Introduced by MR. BARNES, on education.

Resolved, That Section 3 of Article Nine of the Constitution be amended by adding thereto the following:

That all moneys raised by taxation in towns, cities, and school districts, for the support of public schools, and all moneys which may be appropriated by the State for the support of common schools, shall be applied to and expended in no other schools than those which are conducted according to law, under the order and superintendence of the authorities of the town, city, or school district in which the money is to be expended; and such moneys shall never be expended upon or appropriated to any religious sect, for the maintenance, exclusively, of its own schools.

THE YOUNG TEACHER.

BY CHARLES M. DRAKE.

[National City, San Diego County.]

CHAPTER IV.

FRANK GETS A CERTIFICATE AND A SCHOOL.

Frank found that the roll of papers which he had picked up in the street contained a list of questions similar to those which Mr. Osgood had recently given him for written examinations. But he could find no name to show him to whom they belonged.

"Well," said he to himself, "I will look them over, and they may help me a little for the morrow."

Had he known how they were to help him, I think he would have laid them aside. But "coming events cast *no* shadow before," and so he worked out the examples that were given, and freshened his memory upon doubtful points, until he had looked over the entire set of questions.

"There, I know I could have got a certificate on that set of questions," said Frank, pushing back his books. "If the questions for examination are no harder than these, I shall have nothing to fear."

In the morning, Frank went to the Superintendent's office, where the examination was to be held.

The Rev. James O'Brien had held the office of County Superintendent for nearly two terms, and was very desirous of being re-elected the coming fall. Too poor a preacher to get properly supported by his church people, he sought a support from the Government and the schools. How he got a State certificate after his nomination from his predecessor cannot be explained; nor can we see how that same predecessor could get a diploma with a high percentage at Mr. O'Brien's first examination, when he could not get a second-grade county certificate before that time. Perhaps those gentlemen who made the law that one year's experience as a County Superintendent shall be worth five years' experience in teaching can explain his rapid mental growth by his two years' service as Superintendent. Report said that the Rev. Superintendent's apportionments of school moneys were fearfully and wonderfully made; but though report is known to be a liar, it has never been explained how the district that hired the Rev. O'Brien as a teacher never seemed to lack for funds.

His bigotry as a priest was poorly concealed under a pretense of liberality in school matters, and a candidate's religious and political views were carefully scrutinized at examination times.

Fortunately for Frank, his uncle belonged to the same party and Church as the Rev. O'Brien, and Frank's morality was not questioned.

After shaking hands with the Superintendent, Frank was introduced to Mr. Cram, "who has also come to the slaughter," said the Superintendent, facetiously.

"Whom are we to slaughter?" asked Frank. "Not the examiners, I hope, Mr. Cram."

"Mr. Root, good morning, sir. Allow me to introduce Mr. Cram to your kindly notice. Mr. Cram is a friend of ours, and no doubt will make an excellent teacher. He wants to get a State certificate, and—Ah! you are acquainted with Mr. Dare. Has he been going to your school?" said the Superintendent.

"No, I have the honor of being one of Mr. Dare's pupils," said Mr. Root, smiling. "But where are the other examiners, Mr. O'Brien? It is time to begin; for the examinations are so long that we should be prompt."

"Really, I had forgotten to appoint others in the place of the gentlemen who refused to serve longer. There is Mr. Green, who will act, I have no doubt; and we can get along without a third

member. I will look over some of the papers myself."

"But has Mr. Green a first-grade certificate?"

"Why, no. But with the aid of the books, and our assistance, he will do very well."

"But that will not comply with the law. Mrs. Dunn lives near here, and she has a first-grade State certificate. Will she not serve?"

"But she is a woman, Mr. Root!"

"What of that? Ladies serve on examination boards in other counties. Why not in this?"

"Here is Mr. Sawyer. He has a first-grade certificate, so we need not bother Mrs. Dunn," said the Superintendent, evading Mr. Root's question.

Mr. Sawyer was called in, and as he expressed his willingness to serve, to accommodate Mr. O'Brien, he was introduced to the candidates, and the examination began.

Frank and Mr. Cram were placed at one table, so that either could see what the other wrote if he wished, and Frank soon found that Mr. Cram did wish to see his work before completing his own.

When the arithmetic questions were handed to them, Frank saw, with surprise, that they were precisely like those on the roll of papers which he had found.

Frank also made another discovery. Mr. Cram's writing looked very much like the writing on those same papers. Yet Frank could not believe that the papers belonged to Mr. Cram, for that gentleman seemed too unready with his answers, and made numerous mistakes, if one might judge by the frequent scratchings of his penknife.

As the examination went on, Frank saw that this set of questions was exactly like the others, and he did not know what to do about it. At length he resolved to tell Mr. Root the whole story. He did so, saying, as he concluded: "I really think I could have answered all the questions, Mr. Root, though not so well as I have done, perhaps. Do you think I ought to continue at this examination, or wait until next time?"

"Keep right on," said Mr. Root, promptly. "I am glad you told me, for it gives me a high opinion of your honesty and honor. But I would tell nobody else, under the circumstances; and if you will give me that roll, I will endeavor to find out how the owner got those questions. I have looked over your papers thus far, and I will say that no ignorant person who had those questions to study for a week could write as correct papers as you have given us thus far. You have applied for a first-grade county certificate. I will let you change county to State, and I feel sure that your papers will be an honor to our county."

Frank brought him the question papers that evening, and on comparing them with Mr. Cram's writing, there remained no doubt as to whom the roll belonged.

"But why are his answers not better?" inquired Frank. "See how many mistakes he has made, and— I don't like to tattle, but he tried to copy my answers several times, when he thought I was not looking."

"I saw him," said Mr. Root, grimly. "We will give him back his roll when the examination is over. He has probably paid for it, and he shall have it back."

"Does each one of the examining board look over all the papers?" asked Frank.

"I do. But in most counties each one takes those studies he prefers, or can best correct the papers of; and the others, if they re-examine the questions, seldom change the markings. In this examination I mark your papers first, and I do not think the others will change the markings."

"And does Mr. Sawyer examine Mr. Cram's papers?"

"Yes, but I have re-marked them about twenty per cent. lower, on account of the spelling, punctuation and capitalization. It is a shame that a printer's boy, with three months' experience in the office, should be able to do this work better than two-thirds of our teachers."

"Mr. Osgood had me set type and print a great deal with a small hand-press he had with him," said Frank.

"I wondered how it was that your papers were punctuated so correctly. I am sure that you will get your State certificate, if you do as well to-morrow as you have done to-day and yesterday. Do you wish to get a school immediately?"

"Yes, sir," said Frank. "Do you know of one?"

"I have a letter from the clerk of Mountain District, offering a three months' school to the one who passes the best examination this week. They agree to pay fifty dollars a month and board the teacher free at a Mr. Brown's house. Will you take the place?"

"I shall be glad to get it," said Frank, and thanking Mr. Root for his kindness, he went home, full of plans for the future.

We need not describe how the next day passed, nor need we tell of Mr. Cram's confusion when his papers were returned, with the roll of questions, and an assurance that he need never ask again for a certificate from a San Diego board of examination.

There were some objections raised against sending Frank's papers to Sacramento, but Mr. Root was a good friend, and he showed them that if the percentage was high enough the papers *must* be sent up at the candidate's request.

Frank's percentage was over ninety on his county certificate, and the State board gave him a State certificate, with, for a wonder, the markings on his papers slightly raised.

Frank went home, and packing his valise, he bid good-bye to his folks and Mr. Osgood, and set out for Mountain District to begin his first school.

Meeting of the Executive Committee of the State Association of Teachers.

On call of the Chairman, A. L. Mann, of San Francisco, the Executive Committee of the State Association, met at his office, in the City Hall, on Thursday, November 21st,. Present: Messrs. Mann, Swett, Davis, Gilson, and (by invitation of the Chair, and at the desire of the Committee) the editor of the JOURNAL.

It was decided to convene the Institute for 1879 at Oakland, Thursday, January 2d, at 9 A. M., at either the Oakland High-School building or at the City Hall, the place to be more particularly specified in the next JOURNAL.

It was resolved to continue the plan of section work and of holding general sessions, which were found so successful at the last meeting.

Of the Superintendent's section, J. C. Gilson, of Alameda, was elected Chairman; of the grammar and ungraded schools' section, John Swett; of the primary school section, Mrs. Aurelia Griffiths, of San Francisco. A partial programme was agreed on as follows:

Thursday, 9 A. M., Organization; Opening Address, John Swett; address of welcome, Dr. Cole, President of the Oakland Board of Education. 11 A. M., Address, Charles H. Shinn; essay on "The Kindergarten," by Miss Smith, of San Francisco, 1:30 P. M., Section Work. 7:30 P. M., Lecture, by Prof. Becker, of the State University, and by Prof, Norton, of the Normal School.

Friday, 9 A. M., Section Work. 1:30 P. M., Address by Dr. E. S. Carr; Essay by Miss Irene Hardy, of Oakland; Papers and Address on Drawing, by John Swett and Prof. C. H. Allen, Principal of the Normal School; Discussions. 7:30 P. M., Lecture by Joseph Leggett, of the San Francisco Board of Education, and by Prof. M. Kellogg, of the State University.

Saturday, 9 A. M., Address by City Superintendent, A. L. Mann, of San Francisco, and by Prof. E. R. Sill, of the State University; closing business; adjournment.

EDITORIAL DEPARTMENT.

The Examination Scandal.

Ever since John Swett went out of the State Superintendent's office, in 1867, rumors of corruption in the issue of certificates have been more or less prevalent.

It has been asserted that certificates of all grades were often granted without examination; and particularly that examination questions were extensively bought and sold just prior to the examinations for which these same questions were to be used. The statements had become so common when Dr. Carr entered the State Superintendency that he determined, in conjunction with Mr. Swett, whom he appointed on the State Board of Examination, to put an end to the rumors by making it impossible to obtain the questions. Accordingly, Dr. Carr and Mr. Swett each paid one hundred and fifty dollars from his private purse, and had the questions printed at a number of private printing offices in San Francisco, instead of at the State Printer's, in Sacramento. It was found that, despite these precautions, the leak still continued. Mr. Swett then resigned from the Board, and K. W. Brier, of Sacramento, was appointed in his place.

Dr. Carr now determined to take still greater precautions. He accordingly, at his own expense, procured a "papyrograph," and for the past two years, either he or Mrs. Carr has printed the questions.

The *modus operandi* is about as follows: The State Board of Examination now consists of Mrs. Jeanne C. Carr, A. H. Randell, Kirke W. Brier, Mary J. Watson, and Mary E. Michener. To each of these is assigned one or more subjects. They prepare questions on the branches assigned them, and transmit them to Mrs. Carr. Their questions may be accepted as sent, or modified, or entirely changed.

These questions, as sent, or as changed by the State Superintendent or his deputy, are then "papyrographed" (*i. e.*, fac similie copies are made on a copying press, by means of a process and apparatus known as the "papyrograph"), are securely fastened together by eyelets, difficult, *though not impossible*, to unfasten, and are then sent to the different city and county superintendents of the State, with explicit directions to open only on the morning of the examination and before the County Board.

Certainly, every one will join us in saying that the State Superintendent and his deputy have taken every possible means to secure perfectly honest and fair examinations. And moreover, they are entitled to additional credit and praise, inasmuch as what they have done has been at a considerable outlay of time, labor, and their own private money; and with a saving to the State of, at least, fifteen hundred dollars a year.

But all these precautions have, by the light of recent developments, evidently, been in vain. According to law, on Wednesday, November 27th, the county and city boards

of the State, met to hold the regular semi-annual examination. The papyrographed papers had, as usual, been transmitted from the State office, and the examination proceed through Wednesday, and was then adjourned till Friday, Thursday (Thanksgiving Day) being a legal holiday. On Thursday evening the San Francisco *Evening Bulletin*, a paper of wide circulation, published the questions of the succeeding day, with a prefatory statement that said questions had been obtained by the city editor, under a fictitious name, and for the purpose of testing the truth of the rumors so generally prevalent, that examination questions could be had just before examinations by any one willing to pay for them. On Friday, all the morning papers contained the questions, and when the applicants for certificates in San Francisco, met at Lincoln Hall, they were notified that there would be no further examinations, and were dismissed. In the meantime the State Superintendent was telegraphed to, and upon consultation with the Attorney-General, he notified the City Board of San Francisco, as well as the different County Boards that the examination would be postponed until December 11th.

A special meeting of the San Francisco Board of Education was called for Friday evening, an investigation was ordered and a committee of five consisting of John W. Taylor, Chairman, and Messrs. Sullivan, Bacon, Laven, and Mountain was appointed. This Committee immediately subpœned witnesses, and a condition of affairs was soon divulged, which has struck with astonishment and shame those who have the best interests of our schools at heart, and who are devoting their abilities and their life to the cause of educational progress.

At date of writing it has been proved that examination questions have been, for years, a matter of traffic; that two hundred dollars has been the usual price exacted; that a person who has been a sort of hanger-on to the school department, and derisively termed "the thirteenth member of the Board," has made a regular business of selling the questions; and that a prominent grammar school principal has been his main coadjutor; and that an assistant secretary of the City Board of Education is charged with also furnishing the questions to a large extent.

The grammar principal, Mr. Moore, confesses his guilt; the secretary, Mr. Wade, denies unde oath any connection with the matter, and the evidence in his case is so indistinct, uncertain, and roundabout, that his denial is worthy of belief, and is confirmed by all the more recent evidence. The broker, the man who it is alleged, received the questions, furnished them to Mr. Moore and others, and offered them to still others, is named Ewald. He has not yet testified.

So in the metropolis, at least, the dealers in this nefarious traffic have been discovered. But the main question is still a mystery. Who is it that has furnished this man, Ewald, with the questions? The guilt rests between the office of the State Superintendent and the fifty-seven County and City Superintendents of the State. In the office of the former every care is taken; Mrs. Carr herself writes the questions, and, with the aid of her son, E. S. Carr, Jun., prints them, fastens them securely together, puts them in their proper envelopes, and the young man puts them in the mail-bag. There is not the slightest probability, scarcely a possibility, that either by carelessness or otherwise, any questions have ever been divulged from this office since Dr. Carr became Superintendent.

The suspicion, then, rests on some one of the fifty-seven superintendents of the State; and this suspicion is strengthened by the fact that in some of the smaller counties there are occasionally no applicants to be examined, and consequently the questions are not used.

Our theory is that this man Ewald is and has been in communication with some superintendent whose board of examiners do not watch him over closely, and has in this way, been in quite regular receipt of the questions. We trust sincerely that the investigation will be vigorously pressed, and the guilty party held up to public gaze and condign punishment.

Too much credit can not be given to the Investigating Committee for the thorough manner in which they have traced this matter thus far. May perfect success attend

their efforts, so that this foul blot on our profession and obstacle to the efficiency of our schools shall forever be wiped out.

The Last of Volume II.

With this number ends the Second Volume of the JOURNAL. We wish it definitely understood that those subscriptions which began with our first number, March, 1877, end with this number ; and that all subscriptions end two months earlier than would be the case if our year did not hereafter commence on the first of January.

We have furnished two exceedingly large and interesting Supplementary numbers, so that our subscribers may not feel themselves deprived of the full allowance of the JOURNAL for which they have paid.

We think our subscribers will conclude with ourselves, as they regard the numbers of the year just past, that for $2 there has been full value received in quantity, and a hundred times as much in the merit and intrinsic value of the articles prepared for their instruction or entertainment.

From the announcements made elsewhere in this number, our readers will see that the JOURNAL for 1879 will be more attractive and valuable than in the past. Our ambition, a laudable one, we think, is to make this publication of the Far West the best educational journal of the day.

To this end we trust to have the future co-operation of all the teachers of this coast. A prompt renewal of subscriptions will be ever welcome, and the payment of all arrears equally so. To many of our first educators we already owe much for their material assistance in extending our subscription lists. Let others do as well—or, at all events, do the best they can—and our circulation can easily be doubled.

We commend these suggestions to our friends. We think our course has been such as, to quote a correspondent, "demonstrates that the JOURNAL is ever the firm friend of teachers and of educational progress."

As in the past so in the future, we shall strike boldly and energetically at all enemies of our common schools ; shall advocate a broad and liberal treatment of our teachers ; shall protect them against the impositions of those who would injure them by degrading the profession of teaching.

Lessons of the Examination Scandal.

The examination *exposé* is calculated to teach some valuable lessons. First, it shows the folly of intrusting an ignorant Legislature with universal law-making powers. We are governed entirely too much ; and our laws are cast too much in the same mould. Our Legislatures arrogate to themselves to determine what is best in everything for everybody ; and, on the principle of the "greatest good for the greatest number," the minority are treated as if they had no rights, not even the right to live and be happy. We live in a community of uniformity run mad. If a measure is shown to be good for San Francisco, our sapient legislators rush to the conclusion that it must be good for Inyo. And generally it isn't. So in this examination matter. We had a sensible law in Mr. Swett's administration that each county could make out its own questions and grant certificates valid within its own bounds. If a teacher wished a State certificate he was required to be examined on the State questions. This greatly decreased, even if it did not entirely obviate, the opportunities for fraud.

We hope that one result of this *exposé* will be the repeal of the present law, and the substitution of some such provision as this : Let each County Board prepare its own questions and grant its own certificates ; then let the State Board hold two or more examinations annually in different sections of the State, for State certificates. We are satisfied that, under such arrangement, State certificates, at least, will be honestly obtained.

The attention of all readers is specially called to our PUBLISHERS' NOTES, on page 10. There will be found a number of interesting business and miscellaneous announcements.

A Serious Error.

In the practical work of the school-room, there is no mistake more serious than that teachers should look with good-natured patience on mistakes in the fundamental rules of arithmetic. How often do teachers hear, "Oh, it's only a mistake in multiplication!"

It is just this kind of work which gives the outside world the impression that our schools are inefficient. And is the world far from wrong?

If our boys and girls cannot be so trained, that in the simplest and by far the most common of all arithmetical operations, accuracy shall be the rule, and error the rare exception, instead of the reverse holding true, then, what in the name of common sense are we doing?

The conclusion is a mortifying one that not in arithmetic only, but in all school-work, in the more serious after-work of life, "mistakes" are regarded with too much patience, too much good-nature, and are condoned far too easily.

We do not intimate that teachers are wholly responsible for this. But we do insist that, as far as lies in their power, they shall take their stand for perfect accuracy in all things; shall have no mistakes—not even "in multiplication"—no "slips of the pen" without regarding the error as serious as can be committed.

We believe the result will be for good only. School life reacts upon the busier, more heated, and more important labors of riper years.

When that time comes when our merchants will no longer say that "public school-boys can't be trusted to add up a column of figures," then we may depend upon it that our boys will be found more correct in other things than figures.

More of the Examination Question Expose.

Since writing the editorial on the Examination *Exposé*, we find the following in the Sacramento *Bee*. We should be glad to see all the county superintendents of the State relieved from suspicion. Against some not a shadow of suspicion can rest, for they are universally known as gentlemen of the strictest integrity: "In referring to the *exposé* made by the press of the misuse of questions propounded by the State Board of Examiners for applicants for positions as teachers, the Sacramento *Bee* of Saturday states that the documents must have been tampered with in the Post Office, on the way to the county superintendents, and gives for the declaration the following reasons, 'Questions sent to San Bernardino did not reach there for nine days, although a receipt was received in two. Questions sent to Mendocino and Lake Counties reached their destination after considerable traveling and by a tortuous route, being marked "missent." The City Superintendent of Los Angeles declares that he has not received his papers three or four times lately, including the last remittance. Previous questions sent to Sonoma County are known to have been tampered with by postal officials. The delays in delivery afford ample opportunity to copy them, Another way in which they could be obtained is from superintendents in counties in which there were no examination, as was the case in several counties."

"J. H. P. Williams, of San Luis Obispo, is now under examination, charged by the County Superintendent with procuring a copy of the June, 1878, examination, and disposing of it for a large sum."

For the Coming Year.

From our prospectus for 1879 our readers will see that the JOURNAL does not propose to rest on its laurels. We are able to announce only a small number of the writers who are under engagement to contribute for us during the coming year. Arrangements have also been consummated whereby we shall be able to publish at least one illustrated article each month.

Our SCIENCE RECORD, edited by Prof. J. B. McChesney of the Oakland High-School, is already a very interesting and valuable feature of the JOURNAL; and next month, a not less valuable department of MATHEMATICS will be inaugurated under the supervision of Prof. William White of the

High-School in this city. Teachers are respectfully requested to aid us in making these departments interesting. Problems and solutions are solicited in any branch of mathematics; and we shall, where necessary, illustrate them with appropriate designs. We expect the cordial and active co-operation of all friends of education on this coast.

Acknowledgements.

Our thanks are due for hearty words of commendation of the JOURNAL, and for lists of subscribers thereby secured, to Prof. J. M. Guinn of Anaheim, Los Angeles County, Superintendents E. S. Campbell of Tehama, and Samuel Houchins of Colusa.

We are under equal obligations to Professor O. E. Swain, of Chico, and Professor C. B. Towle, of Vallejo. These gentlemen who rank among our ablest and most cultured teachers, have not merely taken an active interest in spreading the circle of our usefulness, but contribute frequently to our columns. We welcome their contributions with pleasure, and cordially invite them to continue.

We trust that many of the teachers throughout the State will do likewise, assisting us by word and pen.

Caution.

Will teachers who send us money or names of subscribers, please direct their letters plainly to PACIFIC SCHOOL AND HOME JOURNAL, or to Albert Lyser, 508 Clay St., San Francisco. Some mistakes have occurred lately, and the business of the JOURNAL is now so extensive that great caution is necessary in all matter sent either to or from its office.

We must be notified of all changes in address by the 15th of each month. Subscribers who do not receive their JOURNAL regularly will please notify us promptly. The JOURNAL will, hereafter, be mailed on the first of each month.

Correspondence on school affairs is respectfully solicited from teachers and superintendents.

Deferred until January.

On account of the already great proportions of this number of the JOURNAL, we are compelled to omit a large amount of interesting matter from this issue. This includes some reviews of excellent books, notably a number from Houghton, Osgood & Company, of Boston. Among these, we must mention a magnificent volume of poetry, The Household Library of British Poetry, edited by James T. Fields and E. P. Whipple, which we can heartily commend as the finest work of the kind issued from the press for many years.

SCIENCE RECORD.

This RECORD is under the editorial charge of Prof. J. B. McChesney, to whom all communications in reference thereto must be addressed.—[Editor JOURNAL.]

Probably at no time in the history of civilization has the subject of scientific investigation occupied so prominent a position as it does today. For the past decade or two it has been the *bete noir* of theologians, but of late it has ceased its assaults upon our spiritual interests, and has made a vigorous attack upon our material prosperity. The cry is not "what must I do to be saved," but "what must I do to save my gas stock." Edison is the great agitator, and the paramount question among moneyed men is, will he succeed with the electrical light? If we may be allowed to judge from his success with the telephone and phonograph, we should say the day is not far distant when that silent messenger who has borne our thoughts across continents and through oceans with such fearful rapidity will soon effectually illuminate our streets and our dwellings—will banish night as it has conquered time—will be in one both our Mercury and our Apollo.

The periodicals of the day abound in statements, some wild and chimerical, others confident and hopeful, and still others fearful and despairing, showing how widespread and general is the interest in the subject. Should Mr.

Edison or any one of the many scientific men who are now making a study of the electrical light succeed in furnishing a much cheaper light than we now have, all ought to rejoice, even if gas stocks do depreciate in value as a consequence.

It has been satisfactorily demonstrated that the germ theory of disease is true with regard to one disease at least—splenic fever—by the investigation of Dr. Koch. In this disease there accumulates in the blood and tissues, but especially in the spleen, a peculiar kind of bacteria—bacillus anthracis. Animals inoculated with these bacteria or their spores, present all the phenomena of splenic fever.

Mr. Basset, of France, recently announced that he had discovered a method for obtaining ammonia on a large scale at a cost almost nominal. The importance of a discovery of this kind can hardly be over-estimated when we consider the value of ammonia as a fertilizer. Ammonia is produced by the chemical union of two of the most abundant of the elements—nitrogen and hydrogen—but owing to the negative character of nitrogen they will only unite when both are in the nascent state, *i. e.*, just at the time of their being freed from some compounds. Mr. Basset generates nitrogen under moisture in the presence of nascent hydrogen at an expense of two cents a pound. Should this reported discovery be verified a revolution will be made in the guano trade and in the manufacture of artificial fertilizers.

The existence of the true heath plant in North America was for a long time considered very doubtful, and its detection in New England, some years ago, is a matter of much interest. The published localities hitherto are New Foundland, Nova Scotia, and Massachusetts, but according to the bulletin of the Torrey Botanical Club, Dr. Heramer. of Newcastle, has lately found a few plants of it near Egg Harbor, New Jersey.—*Nature*.

Mr. Schiff, of Turin, informs the Berlin Chemical Society that he finds that salicylic acid has a remarkable power of purifying water, and that one part per one thousand of sulphide of carbon in salt-water will preserve animal substances for a considerable period.—*Athenæum*.

Dr. John C. Draper publishes an important paper in the last number of the *American Journal of Science* "on the presence of dark lines in the solar spectrum which correspond closely to the lines of the spectrum of oxygen," in which he states his belief, and the grounds for it, that oxygen and the other non-metallic elements also are represented in the solar spectrum by true dark lines, much less intense, however, than those of the metals. He worked by photography, forming the spectrum upon the sensitive plate by means of a diffraction grating and concave reflector. The apparatus was so constructed that the rays nowhere had to pass through glass. He finds sixty-five lines in the photographic part of the solar spectrum which he assigns to oxygen.

Professor Morse, since his return to Japan, has been diligently engaged in prosecuting investigations into the natural history and archæology of the coast region. During his stay at Jeddo he brought together a large mass of material of the most interesting character, the transmission of a portion of which to American museums, it is hoped, he will be able to bring about.

The Italian botanist, Professor Caruel, has recently proposed the division of the vegetable kingdom into five primary groups, setting aside the ancient classification into Phanerogamia and Cryptogamia, and that of Phanerogamia into Gymnospermia and Angiospermia. His groups are as follows, viz: 1. Phanerogamia, or flowering plants, divided primarily into Monocotyledones and Dicotyledones; 2. Schistogamia, including the Characeæ only; 3. Prythallogamia, conterminous with Vascular Cryptograms, and divisible into Heterosporæ and Isosporæ; 4. Bryogamia, synonymous with Muscineæ, and divided into Mucei and Hepaticæ; 5. Gymnogamia, corresponding to Thallophyta, an assemblage which Caruel believes will ultimately be broken up into several primary groups.

Rear Admiral Ammen read a paper before the Geographical Society, November 12th, on the Nicaragua route. The Admiral said: No route exists comparable with that. The most important physical feature is the existence of Lake Nicaragua, which, when full, is 108 feet above the ocean levels. This is designed to be the summit level of the canal. The cost of the canal will fall short of $50,000,000. The question at issue is: Can the inter-oceanic canal be constructed with advantage to its constructors, as well as to the advantage of the commerce of the world? Information from the best sources indi-

cates that not less than 3,000,000 tons of British and American shipping would pass through the canal yearly, and that the aggregate tonnage of the commercial powers would be very great. The saving of distance between New York and San Francisco would be 8,600 miles. The Admiral advocated the construction of the canal on an international basis.

One of the parties of the Geological Survey under the immediate direction of Professor Hayden discovered, during the present season, three complete glaciers in the Wind River Mountains, the first known to exist in the United States east of the Pacific coast. One of these is located on the east side of the Wind River Peak, near the south end of the range; the other two are situated at the east base of Fremont's Peak. The latter two occupy about two miles square in surface, and answer exactly to the description of an Alpine glacier, though not as large. They have terminal and lateral moraines, and, though seen in August, are largely solid ice, with snow around the borders, with true glacial rift, and moving slowly down. On the west side of the Wind River Mountains the ancient glacial action is the most marked and powerful ever known in this country. There are morainal ridges 1,000 feet high and five miles long. The ancient glaciers must have been sixty miles long and twelve miles wide, sending up numbers of arms to the axis of the range.

The famous Eddystone Lighthouse, concerncerning whose safety there was much apprehension during a recent heavy storm, has withstood the elements for more than a century, but its foundations are slowly and steadily giving way. The sea is eating into the solid rock upon which it is built—a reef at the entrance of Plymouth Bay, off the coast of Cornwall, England. The position of the Eddystone Lighthouse in the English Channel exposes it to violent storms, and sometimes the strong plate-glass of the lantern has been broken by the dashing waves. This light was built about 1759 by John Smeaton, who introduced a new principle of building stone lighthouses in its construction. As it is known that it is only a question of time how long the foundations of this structure will last, preparations have been made for a new one, constructed on the same principles, to be erected upon another point of the same reef. Work has been commenced on the new lighthouse, which will be 142 feet in height, and will weigh over 5,000 tons.

NEWS RECORD.

Our Record closes on the 24th of November.

Foreign and Domestic.

The yellow fever has ceased its ravages. There have been no new cases recently, and deaths have nearly ceased. It is calculated that this year's ravages has cost the South more than 14,000 lives and $150,000,000. This is equal in life and treasure to the cost of the Mexican War.

Elections for State officers and members of Congress were held in twenty-eight States on November 1st. The results in the North generally favored the Republicans; the South was solid in favor of Democracy. In Congressmen, the gains are largely in favor of the Republicans. The House of Representatives now stands 134 Republicans, 148 Democrats, and 11 Greenbackers.

In Madrid, October 25th, an attempt was made to shoot the young King Alfonso of Spain. The assassin was immediately arrested, and is to be promptly tried.

About the middle of November, an attempt was made to assassinate King Humbert of Italy. He was passing through Naples, where an enthusiastic reception was being given him, when he was thrust at with a knife fastened to the end of a pole. He escaped unhurt, though one of his ministers, who sat beside him, was severely wounded. The assassin was secured.

An insurrection has broken out among the Arab tribes between Bagdad and Bosrah, Turkey in Asia.

A new gold field of considerable extent has been discovered in India.

The President has officially promulgated, through the State Department, the convention which has been ratified between the United States and all nations in Europe, except Great Britain, together with most of the South American Republics, providing for the establishment and maintenance at Paris of an International Bureau of Weights and Measures.

Fighting has been renewed in Transvaal between the British and Kaffirs.

The Austrian Emperor has granted general amnesty in Bosnia and Herzegovina.

Midhat Pasha has been appointed Governor-General of Syria.

The Chinese Ministers at Washington made their first business call at the State Department in November.

Leon Gambetta and De Fourton fought a duel recently near Paris, but neither was hurt.

Woman suffrage was inaugurated at Seattle recently in a school election.

Bernard F. Kenny, Workingmen's delegate to the Constitutional Convention from San Francisco, died in November. Only a few days before,

Col. J. M. Strong, delegate from Merced, had been buried. This is the third delegate who has died since the Convention assembled, not two months since.

General Gordon has been elected to the United States Senate from Georgia.

F. A. Bee has been recognized by the President as Consul of the Chinese Empire at San Francisco.

On November 15th, the grave of the late A. T. Stewart, of New York, was desecrated, and his body stolen. No clue to the perpetrators of the foul outrage has yet been found, though a reward of $25,000 has been offered for the recovery of the body, and the conviction of the thieves.

Personal.

The Royal Humane Society of England are called upon to look well to the gender of those to whom medals are to be awarded. Among the recent awards for gallantry were a bronze medallion to Mrs. Dinny Roebuck, and a handsome testimonial to Miss E. Bond, her sister, for courageous conduct. Three sisters were bathing at Broadstairs, when one of them was carried off her feet into deep water; another sister, going to her help, was clasped by the neck and dragged into deep water; and the third sister, who went to help the other two, was carried out of her depth, all three being in the utmost danger, when Mrs. Roebuck and her sister, with all their clothes on, rushed in immediately, and rescued the girls from their peril. Mrs. Roebuck was the first to reach the ladies, and was dragged out of her depth. Miss Bond, partly wading and partly swimming, saved the whole party, the difficulty being much enhanced by the incumbrance of the clothes of herself and sister, and the strong current.—*Harper's Weekly*.

The latest allusion to the domestic life of Charles Dickens is furnished by a London letter to the Auburn *Advertiser*, which says: "It will be gratifying to thousands of Dickens' admirers in America to know that the wife of Dickens and Miss Hogarth, her sister, are reconciled, and both united in compiling a memoir of the novelist. In an interview one evening with George Cruikshank last December, at his residence in Hampstead, he told me that the difference which arose between Dickens and his wife grew out of her frequent criticisms, and what he thought intermeddling with his own exclusive creations, until he insisted upon their living apart in the same house at Gadshill. This she declined to do, and at once took up her residence with Mr. and Mrs. Cruikshank. His eldest son, siding with his mother, left also at the same time. Mr. Cruikshank added: 'There was no scandal otherwise connected with the matter.' Perhaps, in fairness, it ought to be said that about this time Dickens had disagreed with his publishers, Bradbury & Evans, about *Household Words*, and parted company, and that Charles Dickens, Jr., had married a daughter of Mr. Evans. This may have had its influence upon the young man going with his mother."—*Harper's*.

Gustave Dore has finally determined to visit this country at an early day, while opportunity offers, to see the Republic generally, but especially Niagara, our eminent cave in Kentucky, the Rocky Mountains, and the Yosemite. Possibly he may wander into Mexico. He is now at the zenith of his fame, in full health, and only forty-five.

It may interest fond mothers to know that Mr. Frank Buckland, the eminent English naturalist, declares that babies swim naturally. A friend put one into warm water, and it took to it like a duck, swimming briskly. The Polynesians, it is known, find that their children can swim and enjoy the exercise at a very early age.

General Benet, Chief of Ordnance of the United States Army, in his annual report to the Secretary of War, makes a recommendation, which, if adopted, would give a great impetus to the military spirit of the country. He recommends that further legislation be asked of Congress on the subject of officers detailed and arms furnished to the colleges of the country, and expresses the belief that the provision of arms, and officers as instructors in their use, would make these institutions important in view of the influence they would exercise over the militia, and in keeping alive the military spirit of the nation.

Educational.

[For the following notes, we are indebted mainly to *Harper's Weekly* and to the *Independent*.—EDITOR.]

The London School Board has not yielded to the demand for secularism, pure and simple, in state education. In each of its schools there is Bible instruction, accompanied with brief religious exercises. The denominational schools, the rivals of those of the Board, make religious instruction a leading feature of their system. The number of children in London requiring elementary education is estimated at 614,857; the voluntary schools provide for 278,923, and the Board schools for 186,468. There has been in seven years an increase of 203,130 in school sittings.

Dr. Quackenbos, in his interesting work on *Ancient Literature, Oriental and Classical*, recently published by Harper & Brothers, says "that of more than 100,000 words which constitute our present vocabulary, but 3,000 are in common use. The Old Testament was translated with the help of only 5,462 English words. While Shakspeare's genius required 21,000 words for its expression, Milton's epic employs less than half that number." Dr. Quackenbos also states that the number of different languages now spoken on the earth is about nine hundred.

Mr. A. A. Low, of New York, has presented to the city of Salem, Mass., $5,000 as an educational fund, to be kept, with such additions as may accrue to it, and its income devoted to the

education of meritorious youth who shall have been fitted for college in a public school of Salem, and who shall be designated by the Mayor, the president of the Common Council, and a member of the School Committee. The picture of Washington hanging in the Aldermen's room in the City Hall, Salem, was a gift from Mr. Low.

The Right Hon. W. E. Forster has sent $2,500 to the fund for a school of technical education to be established at Bradford, Eng., and says: "If Bradford is to hold its own, we must do as much as the French and our other Continental competitors for the scientific training of those engaged in our industries, whether masters or men. I entirely agree with those who think that the practical experience of the workshop cannot safely be dispensed with, but I also think that the time is come when we must add to that experience the systematic teaching of the school."

Practical instruction in cooking is given to a class of ladies at the hall of the Young Men's Christian Association by a lady formerly connected with the Edinburgh and South Kensington Schools of Cookery.

Miss Grace C. Bibb has been appointed a member of the faculty of the State University at Columbus, Mo., at a salary of $2,000.

In Phillips Academy, Andover, Mass., there are eight Chinese students, sixteen ministers' sons, and four sons of foreign missionaries.

The Colorado State University continues to grow to such an extent that it has been found necessary to increase the teaching force this year. Professor W. F. Gove, a graduate of Dartmouth College, has been elected to a chair in mathematics. There are now seventy-nine students attending, against forty-eight at this time last year.

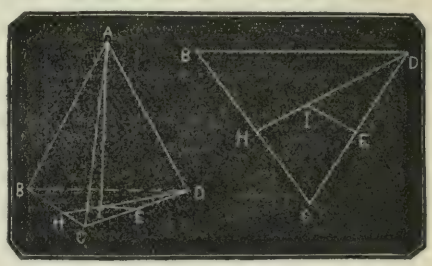
Dr. Ruffner, Superintendent of Public Instruction in Virginia, boldly denounces the misappropriation of school funds as a piece of robbery. He claims that $850,000 was collected from the people, and set apart by law for the support of the common schools, and charges that this, with the interest, has been diverted from the proper use, and applied to the ordinary expenses of the State Government. This is but one of the unhappy phases of Virginia's financial management.

NOTES, QUERIES AND SOLUTIONS.

[From *Educational Weekly*, Oct. 10th, 1878.]

"Four balls, each six inches in diameter, are placed in a pile, with three balls at the bottom and one on top, required the height of the pile."

The centers of any two of the balls are six inches apart. If four planes be passed through the centers of the balls in such a way that each plane shall contain the centers of three balls, the volume within these planes would be a triangular pyramid whose faces would be equal equilateral triangles. The edges of this pyramid, or the sides of the faces, would be six inches long.



Let BCD—A represent the pyramid. The altitude AI is wanted. AID is a right-angled triangle, and $AI^2 = AD^2 - ID^2$. Since BCD is an equilateral triangle, and EID is a right-angled triangle, the angle IDE is an angle of 30°, and the side IE is one-half of ID. But IE and IH are equal, hence ID is two-thirds of HD. $HD_2 = CD_2 - CH^2$, then $HD_2 = 36 - 9 = 27$; and $ID^2 = \frac{4}{9}$ of $27 = 12$. $AI^2 = AD^2 - ID^2$, then $AI^2 = 36 - 12 = 24$; and $AI = 4.9$ inches.

From the base of pyramid to the plane which supports the balls would be the semi-diameter of a ball, three inches; and from the apex of the pyramid to the highest part of the upper ball would be a semi-diameter, three inches. Then the height of the pile would be $4.9 + 3 + 3$ inches $= 10.9$ inches.

C. B. Towle.

ARTICLES FOR TEACHERS IN THE DECEMBER MAGAZINES.

Scribner's. — Bird Architecture (illustrated); Dora D'Istria; The Douglass Squirrel of California (by John Muir); The Cliff Dwellers (illustrated); Undergraduate Life at Oxford.

Harper's. — Christmas Poems; England's Great University (illustrated); Knoware; Silver.

Appleton's. — The American at Work (illustrated); Old New York; The Greatest Man in the World.

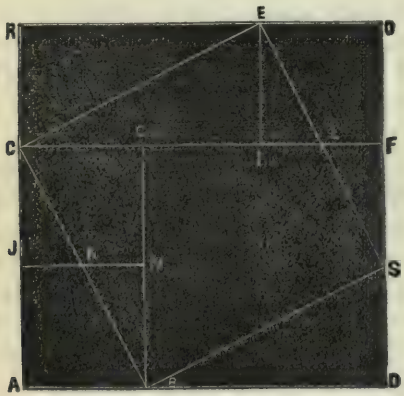
St. Nicholas.—King Alfred's Lantern; The Microscope and What I Saw through it.

Lippincott's. — Danubian Days; The Paris Exposition of 1878; The Great Earthquake of 1878 in Venezuela.

The Atlantic Monthly.—Sheridan at Winchester; Three Typical Workingmen; The Nature of Music.

The Popular Science Monthly.—Edison's Telephonic and Acoustic Inventions; Education as a Science; Language and the Emotions; Animal Intelligence; Biology and "Woman's Rights."

EDITOR JOURNAL: In your July issue, Mr. Price, in the third step of his demonstration, says: "We see by inspection—— ILE=LSF," etc.



If ILE=LSF then IE must equal FS, because the triangles are similar, EI being perpendicular to CF and parallel to FS, and the homologous sides of equal similar triangles must be equal. (Geom. IV, 25.) Hence, FS=FO=SD=½BD. So his solution applies only when the legs of the triangle have the ratio 1 : 2.

By taking AB equal to AC the absurdity of the equation would easily be seen "by inspection," for then ILE would equal ¼ CBSE, while LSF would be reduced to zero.

That CBSE=$\overline{AB}^2+\overline{AC}^2$may be proved as follows: The triangles CEI and CRE are equal, each being half of the rectangle CIER. (Geom. I, 30 Cor. 1.) Hence, CEI=BDS (Ax. 1). Similarlarly CBG=CAB=ESO. Also the square on AB equals the square on EO, as AB=EO (Ax. 3). Now by inspection it may be seen that CBSE= the sum of $\overline{BD}^2$ and $\overline{AB}_2$) is to equal $\overline{EO}^2$)—BSD+CEI (which is the equal of BSD)—ESO+CBG (which=ESO). The solution is general and will apply to any right-angled triangle. The references are to Loomis' Geometry.

Very truly, A. F. PARSONS.

Adelaida, Sept. 10, 1878.

Spelling reform is advised by the American Philological Association, as instanced in the following words: Tho, thru, catalog, wisht, gard, hav, infinit, definit, liv, giv, ar. The Spelling Reform Association recommends the adoption of these rules for immediate observance: I. Use *e* for *ea* when equivalent to short *e*, as helth, welth; II. Omit silent *e* after a short vowel, as hav, giv, liv; III. Use *f* for *ph*, as filosopher, fantom; IV. Omit one letter of a final double, as wil, shal; V. Use *t* instead of *ed* when it represents the sound, as wisht, slasht.

SUMMER INSTITUTES.

AMADOR COUNTY.

Great improvement is already manifest in the schools of Amador since Supt. Edsinger took charge. We have heard more of the schools and teachers of this county in the past nine months than during the whole two years of his predecessor's term of office. The Institute of this county, held in Jackson, Oct. 9th–12th, was both interesting and instructive. The proceedings were participated in by a large proportion of those in attendance. Supt. Edsinger presided; A. W. Kerr was chosen Vice-President; Joseph Haws, Secretary, Misses Jennie Dryer and Ida E. Caldwell, Assistants.

The President opened the Institute with an address, showing the advantages possessed by the teachers of California over those of other States, inasmuch as they are paid for their attendance, whereas teachers in most other States receive no compensation whatever. He urged upon those present to endeavor to make the Institute a success.

Mr. Ford favored the Institute with his method of teaching spelling; also spoke of the importance of grading schools.

Remarks on school discipline were next in order, opened by Mr. Spooner, who spoke of the difficulty of carrying out the instructions of the State Board literally.

Mr. Rickey desired the President to give his views on the subject.

The President stated that, in his opinion, the State Board did not require that the course of study should be exactly carried out in the ungraded district schools.

The following teachers took active part in the proceedings of the Institute: L. Miller spoke on "Word Analysis;" Miss McGee, "Reading by the Word Method;" A. W, Kerr, "Composition;" Miss M. C. Burt, "Primary Grammar;" Mr. Hudson, "Higher Grammar;" Mr. Yelmini, "Penmanship;" Miss Darling, "Primary Arithmetic;" Mr. J. S, Clarke, "Higher Arithmetic;" F. J. Miller, "Physical and Political Geography;" Mr. Smith, "Physiology."

Prof. Allen, of the Normal School, was present, and spoke frequently on methods of teaching, and delivered evening lectures.

We are able to give only a brief outline of the proceedings of this Institute, which was undoubtedly the most interesting and profitable ever held in this county.

SAN MATEO COUNTY.

The teachers of this county, in October, had a very interesting and valuable Institute. Supt. G. P. Hartley presided, J. C. Nash was chosen Secretary, and Miss S. L. Sears, Assistant Secretary.

John Swett, of San Francisco, was present, and addressed the teachers during the daily sessions, and lectured in the evening.

The teachers of the county who took a prominent part in the exercises were E. R. Brooks, Mr. Brown, C. H. Dunn, M. J. Hanrahan, Supt. Hartley, Mrs. Hartley, and others.

Mrs. Jeanne C. Carr was present, and lectured at both day and evening sessions.

Among the resolutions passed was the following:

Resolved, That we endorse the HOME JOURNAL, and believe it to be not only the privilege, but the duty, of each teacher to subscribe for it; as being the only educational journal published on this side of the Rocky Mountains, and the official organ of the State Board of Education.

COLUSA COUNTY.

The Colusa County Teachers' Institute convened at the Christian Church on Tuesday, November 5th, at 7 o'clock P. M. Supt. Houchins presiding. J. S. Lewis and Miss Charlotte McIndoe were chosen Vice-Presidents; John E. Hayman, Secretary; Miss Lucy Lovelace, Assistant Secretary.

After the usual committees were appointed, Supt. Houchins read a detailed report of the condition of the schools of Colusa County. He reported the schools to be in a better condition than at any previous time during his three years' service as superintendent; but startled his hearers with the statement, that during the past year five hundred children of the county were not in attendance at any of the schools. The exercises from day to day were very interesting, and were participated in by nearly all of the fifty-five teachers in attendance.

Mrs. Dr. Carr was present on Thursday, and added much to the interest of the Institute by her lectures on methods of teaching. Profs. Lawson and Durham, of Pierce Christian College, were also present, and gave valuable lectures on Analysis and Algebra. At our evening sessions eloquent lectures were delivered by Rev T. H B. Anderson, Mrs. Dr. Carr, and Elder W. H. Martin. Rev. Anderson's eloquent lecture was requested for publication, and will appear in the *Colusa Sun*. After the close of the Institute on Friday evening the teachers, with their friends, repaired to the theater building, where a few hours were spent very pleasantly in a social way. Take it all in all, the Institute was the best ever held in Colusa County. The following resolutions were adopted by the Institute:

First. *Resolved*, That the fact reported by Supt. Houchins, of there being over five hundred children in Colusa County who were not in attendance at any of the schools during the past year, demands the serious consideration of the authorities.

Second. *Resolved*, That we regard the State uniformity text-book system an expensive and disadvantageous provision, and one that should be abolished.

Third. *Resolved*, That we are in favor of free

text-books, as recommended and explained in the last report of the State Superintendent.

Fourth. *Resolved*, That the State Superintendent be requested to furnish blanks containing relative duties of the teachers and trustees.

Fifth. *Resolved*, That as at present, California has one of the best educational systems in the United States; that late changes have been detrimental to its interests; and therefore, any other changes in it, except as the spirit of progress demands change in regard to text-books, should be looked upon with disapproval by all true friends of education.

Sixth. *Resolved*, That it is the duty of every teacher to subscribe for at least one educational journal, and that we recommend the PACIFIC SCHOOL AND HOME JOURNAL as being worthy of the support of the teachers of this county.

Seventh. *Resolved*, That the practice pursued by some teachers of underbidding others to obtain a position is unprofessional and unmanly; and that these teachers do not deserve to be countenanced by the profession.

Other resolutions, thanking Supt. Houchins, Profs. Lawson, and Durham, Rev. T. H. Anderson, Mrs. J. C. Carr, Elder W. H. Martin, Rev. W. P. Kouts, and others, were unanimously passed.

SAN BUENAVENTURA COUNTY.

An evidence of the thorough efficiency of the recently elected Superintendent of this county, Mr. D. D. DeNure, was witnessed in the very enthusiastic and interesting Institute held in this county in November. There was a full attendance of the teachers of the county. Supt. DeNure presided and C. J. Hubbard was elected Secretary.

Mr. Carlton, Business Manager of the JOURNAL, was present, and spoke on methods of teaching, and delivered an interesting evening lecture on Natural History.

Some of the chief topics discussed, with those who took prominent part in the exercises, are as follows: Mr. Meredith spoke on "Language;" Miss Stevens, on "Penmanship;" Miss Sturgis, on "Hints to Teachers;" Miss H. Crowley, on "Primary Arithmetic" (illustrated by a class of primary pupils); Mrs. E. Chace, on "Reading" (illustrated by her excellently taught first-grade class)—Mrs. Chace formerly taught in San Francisco, and ranked among the best teachers in this city;—Miss Maria Wason, on "The Teacher's Influence; and several others of nearly equal merit.

Among the resolutions passed was one warmly recommending the JOURNAL.

Educational Intelligence

FROM

STATES AND COUNTIES.

CALIFORNIA.

SAN FRANCISCO COUNTY.

We present to our readers copious extracts from the report of the City Superintendent of Common Schools, for the present fiscal year. The report has many valuable features, both as an exhibit of the condition of the San Francisco schools, and as a contribution to the educational literature of the day. It fully establishes the position of Mr. Mann as one of our foremost educators, a man of great capacity of mind and first-class administrative ability.

Although our views are diametically opposed to his on the subject of "Oral Instruction" and "A Course of Study" for our schools, we concede and respect Mr. Mann's wide catholicity in everything pertaining to educational progress, and the stern integrity of character which dictates every act of his official, as well as of his private career.

A few words of hearty commendation are also due to the very efficient and able Secretary of the Board, with whose report we begin our extracts. Mr. Beanston has occupied a position in the Education office sixteen years, and for ten years has been Secretary of the Board.

United to every necessary qualification for his high position, is an unbending honesty of purpose and a strict fidelity of action, before which the tongue of slander or the denunciation of faction has never been able to raise its voice.

Mr. Beanston's report includes the following interesting statistics:

Estimated population, 1878	308,215
Number of youth under seventeen years of age	80,288
Number of youth between five and seventeen years of age, who are entitled to draw public money	55,899
Increase for the year	2,689
Whole number of different pupils enrolled during the year in all the public schools	38,672
Average daily attendance in all the public schools	26,292
Number attending private and church schools	6,551
Enrolled in high schools	1,219
Enrolled in grammar schools	14,448
Enrolled in primary schools	19,406
Enrolled in evening schools	3,599
School buildings used by the Department	61
Total number of teachers, (males, 74; females, 598)	672

Number of Principals, (high schools, 2; grammar schools, 15; mixed schools, 7; primary schools, 31; evening school, 1)		56
Number of Principals not required to teach a class, (males, 16; Females, 25)		41
Number of Vice-Principals, (males, 8; females, 14)		22
Number of teachers in high schools, (males, 12; females, 22)		34
Number of teachers in grammar schools, (males, 23; females, 235)		258
Number of teachers in mixed schools, (males, 8; females, 20)		28
Number of teachers in primary schools, (males, 0; females, 302)		302
Number of teachers in evening schools, (males, 25; females, 12)		37
Number of teachers of French		7
Number of teachers of German		14
Number of teachers of Latin and Greek		1
Total amount paid for teachers' salaries for year ending June 30th, 1878	$ 674,047	84
Average monthly salary of male teachers	159	32
Average monthly salary of female teachers	81	32
The total value of school property is estimated at	2,711,000	00

The following extract from

SUPERINTENDENT MANN'S REPORT

will prove of general interest to educators everywhere:

"A GENERAL VIEW.

"The schools of San Francisco are good. They are not the best in the country, but they are among the best. We have some poor teachers and poor teaching. We have some buildings that are unfit for school purposes and unworthy of a great city. Our Board of Education and our teachers are only moderately progressive. We have not the Kindergarten system of St. Louis, the fine Normal College of New York, the board of professional supervisors of Boston, and the regulation requiring every appointee to be a graduate of a normal school, or to have had two years' successful experience; we have not the system of quarterly promotions of pupils prevailing in Chicago, nor the law requiring members of the Board of Education to go out of office at different times, which is the common-sense rule of every city in the Union but our own; we have not that sentiment in the community, found in older cities, that continues in office for successive terms faithful and experienced educators, and that compels nominating conventions to select the very best men for school officers.

"We have, on the other hand, many excellent and well-furnished school buildings, many faithful and successful teachers, an upright, intelligent, and hard-working Board of Education, a simple, practical, and well-digested course of study, and the co-operation and kind feeling of parents, pupils, and teachers. Let any citizen visit the school nearest his dwelling, let him spend a few hours among teachers and pupils, and I am satisfied that he will say that the money spent in popular education is well spent, and that in no other department of the city government do the people so nearly get the worth of their money. Still, our schools can be made better, their facilities can be extended, and in this respect they will be materially aided by appropriate legislation. * * * *

"COMPULSORY LAW.

"One of the strongest arguments used to establish the justice of general taxation for common schools is, that a government founded upon universal suffrage cannot allow its citizens to grow up in ignorance. It is also said that it is cheaper and more satisfactory to educate people at the public expense than to pay the cost of their arrest, conviction, and imprisonment for crime. But when one may see boys of school age lounging about the streets and wharves in school hours, engaged in no useful employment, but, on the other hand, waiting for some opportunity to engage in mischief or petty crime, one is led to ask, are not the taxpayers, to a considerable extent, defrauded of their rights? Do not the schools supported by their earnings fail to reach the very class for which they are especially designed? Have not the taxpayers a right to demand of the city government, which they so munificently support, some organized effort to put these idle and mischievous boys under some civilizing influence, and to prevent them from becoming dangerous and expensive criminals?

"The Legislature has provided the legal motive power. It only remains for us to devise the machinery to make that power effective. I would suggest the opening of a central Truant School, to be put under the charge of an experienced educator, distinguished for his firmness, kindness of heart, and facility in gaining the confidence and respect of troublesome boys. I would have every boy found at large during school hours, unless performing some errand for his parent or employer, arrested and passed over to an officer especially detailed for that purpose. This officer should take the boy to the Truant School, and the boy should be compelled to attend that school until he should be thoroughly reformed, and transferred to some other public school, or

if found incorrigible, he should be sent to the Industrial School.

To this school also should be sent those pupils that are suspended or expelled from other schools for truancy, disobedience, etc. I do not know any way in which the funds contributed for school purposes could be more wisely spent than in establishing a school of this kind, where boys that are now only idle and mischievous, not bad enough to subject themselves to legal penalties, yet too wayward to be allowed to associate freely with ordinary school children, can be brought under enlightening and refining influences, taught habits of obedience and industry, and thus saved to themselves and to society. A rigid enforcement of the compulsory education law is precluded by the insufficiency of school accommodations. The Department has scarcely rooms enough for the voluntary attendance, and many of these rooms, as I have shown above, are shamefully overcrowded and unheaithy. * *

"RETRENCHMENT.

"By consolidation of schools and classes, a saving of $20,000 per annum has been effected, without in the least impairing the efficiency of the schools concerned, but rather improving them by a more thorough and uniform classification.

"By dispensing with the services of the special teachers of gymnastics and military drill, and of French and German in primary grades, a saving of $12,000 has been made. By this change the instruction in French and German has actually been improved, as it is now done by the regular class-teacher, who, in addition to her regular certificate, must also hold a French or German certificate. This obviates the necessity of changing teachers in the same class, or of having two teachers at the same hour in one class, and cures the evils that had grown up in discipline and instruction under the old plan of special teaching. The work of the special teacher of calisthenics is thrown upon the regular class-teachers, and I have found it everywhere excellently done. * * * In music and drawing a saving of nearly $3,000 per annum has already been made, and it is contemplation to reduce the staff of music teachers from seven to four, thus effecting a further saving of about $3,000. The retrenchments already made at the suggestion of the Classification Committee amount to over $36,000 per year. Besides this the Committee on Furniture and Supplies has done a great deal of intelligent and careful work in this direction, and will undoubtedly reduce expenses by the amount of $10,000. The Committee on School-Houses and Sites is actuated by the same spirit and the amount expended for repairs, etc., it is confidently expected, will be $30,000 less this year than the amount expended last year. It is gratifying to think that this large amount—over $75,000—will be saved to the city without damage to the schools and without reducing the well-earned salaries of the regular force of teachers. Yet the estimates of probable receipts made by the Auditor are so largely in excess of what the department will actually receive, that the Board will be compelled reluctantly to make a reduction of about $50,000 more in teachers' wages, in order to keep the schools open the entire year. This leads me to say something more upon the subject of

"SALARIES.

"The statement is often made that teachers' salaries are higher in this city than in other cities. I have given this subject some thought, and have come to the conclusion that the salaries paid in San Francisco to male teachers are moderately liberal, while those paid to female teachers are the highest in the world. * * * *

"THE PLAN OF MAKING PROMOTIONS

"Every six months, instead of once a year, as heretofore, has been introduced, but time enough has not yet elapsed to determine whether this is a real improvement. The end sought is to give the graded system more elasticity by allowing pupils, according to their varying degrees of capacity and industry, to complete the work of a grade in six months, a year, a year and a half, or two years. Under our system, as followed in previous years, bright pupils were kept back by their more sluggish fellows, and those who just fell below the standard required for admission to a higher grade, were detained a whole year in reviewing work that might be well completed in a few months. This scheme of promotions includes also admissions to and graduations from the high-schools. So that after three years from the present we shall probably graduate two classes every year from the high-schools. It may be found, however, that the pupils admitted to the high-schools in the middle of the year will either lose or gain half a year during their three years' course, so that but one class a year will be graduated.

"Promotions 'on trial'—*i. e.*, promotions of

pupils that fail in examination, but are recommended for a higher grade by their class-teachers—have been abolished. This practice had led to great abuses, especially in those schools in which there was a small attendance in the grammar grades. Principals and teachers were anxious to keep those grades full in order to make a favorable showing in comparison with other schools; consequently in too many instances pupils were advanced beyond their attainments, and there resulted the evils of cramming, poor classification, and want of uniformity in grades. Pupils can now be promoted regularly every six months by an examination given simultaneously throughout the department by the Classification Committee of the Board of Education, or, in exceptional cases, they may be promoted at any other time after a personal examination by the Deputy Superintendent.

"We have also a rule by the operation of which any pupil found incompetent to perform the work of his class may be assigned to a lower grade. By these devices we secure all the advantages of the graded system, and at the same time remedy its most prominent defect—want of elasticity and adaptation to individual peculiarities.

"Another innovation is the establishment of a Saturday Normal Class for inexperienced teachers. Those teachers that have had less than two years' experience are required to assemble at Lincoln Hall on Saturday, at 10 A. M., twice every month. Other teachers or other persons interested in education are also invited to be present. The exercises consist of an address by some member of the Board, by the Superintendent or Deputy Superintendent, essays by prominent educators, and exhibitions of model classes. From time to time some school will be designated to hold a Saturday morning session, so that teachers may visit classes and see the various topics of the course of study under actual treatment by experienced teachers. The attendance at these meetings has been large and the exercises interesting and profitable. The best of feeling prevails; teachers and school officers are brought together and are inspired to labor emulously and harmoniously in their noble work.

"A great reform has been made in the mode of appointing and assigning to duty

"SUBSTITUTE TEACHERS.

"In a department so large as ours, employing nearly seven hundred teachers, many of whom are women in delicate health, many classes are deprived of the services of their regular teacher for periods ranging from one day to six months. The statistics show that on an average sixteen teachers are necessarily absent from duty every day. This is a great but unavoidable evil. Now, in order to lessen the harm to a class from the temporary absence of its regular teacher, it is evident that a person of extraordinary gifts should be sent to take charge of it. The substitute should be a teacher possessing great versatility, vivacity, sympathy with children, and ability to command the attention and inspire the confidence of a strange class at once. The substitute should know intimately and in detail every part of the course of study, while the regular teacher requires so thorough a knowledge of only one-eighth of it. The substitute should be able to adapt herself, readily and easily, to the ways and whims of different principals. Above all, she should have that rarest of gifts, a conscience that will impel her to put forth her best endeavors without definite responsibility. For these reasons I hold that the position of substitute teacher is the most important, the most difficult, and the most responsible office in the department, excepting that of principal, and it should be the best paid. The present Board of Education found a very different view prevailing at headquarters, last December, though teachers, principals, and the Deputy Superintendent had unanimously arrived at the conclusion that the custom then in vogue of allowing two hundred applicants for positions to try their ''prentice hands' on temporarily orphaned classes was 'exceedingly wasteful, defective, and inefficient.'

"The plan recommended in the last Annual Report of the Deputy Superintendent has been substantially carried out. A corps of twenty-two substitute teachers has been regularly 'nominated, recommended, appointed, and elected' by the Board. These substitutes report at the rooms of the Board every morning and are sent out to various schools on the reception of telegraphic signals. Of course, if a substitute is required longer than one day in the same class, she does not again report at the office till her services are rendered unnecessary by the return of the regular teacher. The substitutes thus become acquainted with the peculiarities of the different schools, and gain an experience valuable alike to themselves and to the department. They are paid three dollars per day for actual

service in a primary class, four dollars in a grammar class, and one dollar and a half for remaining at the office half a day to answer calls. The allowance of one dollar and a half is made only when they report at the office and are not sent to some school. With this scale of wages their annual salary is somewhat less than that of the regular teachers. I think this is wrong. They should receive at least twenty-five per cent. more than the regular teachers. Teachers and principals express themselves very much pleased with the working of the new system. When they require a substitute they are now sure of getting an experienced and reliable teacher, who will give them no trouble, and will be of positive benefit to the class. This is a point that has not received the attention it deserves in other cities. I believe that our solution of this problem is by far the best arrived at anywhere, and that, in this respect, we have made an important educational discovery.

"THE COURSE OF STUDY

"Has been subjected to a searching analysis and thorough revision by the Classification Committee. The revised course is confidently presented as simple and practical, and yet sufficiently liberal to give to all a sound English education. If you examine this course of study you will see that it shows what is attempted in the primary, grammar, cosmopolitan, and high-schools. The directions for the two latter sorts of schools occupy necessarily considerable space in the pamphlet entitled 'Revised Course of Study,' but it would be unreasonable to suppose that these schools occupy a proportionate place in our system of education. The total enrollment of pupils in all the schools is nearly 39,000. Of this large number 1,219 are in the high-schools and 2,811 are studying French or German in the cosmopolitan schools. But as these last devote but one-fifth of their time to French or German and four-fifths of their time to the English branches pursued in the primary and grammar schools, they must be reckoned as equivalent to but 560 pupils devoting all their time to the study of foreign languages. Thus, out of the grand total of 39,000, only 1,779 are engaged upon studies outside of the ordinary English branches. Nineteen-twentieths of the pupils in our schools are instructed in the rudiments of a common English education, and nine-tenths of the money expended upon the schools is used for this purpose and no other. The Classification Committee of the Board of Education, appreciating these facts at their real value, expended much time and toil (for which expenditure they will be rewarded chiefly by the approval of their own consciences) upon the selection and arrangement of the matters included in the course of study for the four primary and the four grammar grades. The general character of the work done by the Committee may be presented as follows:

"1. They have allotted more time to the subject of reading, have introduced the Sixth Reader into the first grades, and a little Illustrated Monthly Magazine into the primary grades.

"2. They have increased the work required in spelling, and have transferred the special text-book on word analysis to the high-schools.

"3. They have ordered a text-book in arithmetic to be placed in the hands of every pupil in all the grades, down to and including the sixth. They have also re-arranged the work in arithmetic.

"4. The subject of English grammar and composition has been treated in a similar manner; pupils in the four grammar grades are required to be furnished with the text-book.

"5. In geography and History of the United States the Committee found the work very satisfactorily arranged as regards the use of the text-book and the omission of matters of burdensome and unimportant detail. In the former subject, however, a still further reduction of the amount to be learned was made. A large mass of material which had been piled upon the shoulders of primary children and labeled "Local Geography' was lifted off, and in its place were put a few simple questions on the globe, and the cardinal points of the compass with easy exercises on maps of the hemispheres, of the United States and of California.

"6. A radical change was made in the subject of 'Oral Instruction.' Under this head the Committee found the course of study burdened with matter taken from the whole circle of the sciences. Teachers were expected to lecture to little children upon all departments of knowledge, and their pupils were expected to reproduce in written examinations information obtained by this easy process. The result was, on the one hand, a reprehensible amount and method of cramming; on the other hand, the indispensable but less showy arts of reading, writing, and ciphering were crowded to one side. In the present course of study more than half the matter under this head has been re-

jected. The text-books on physiology and physics have been dropped and their place is supplied by reading and talking about the matters treated of in that excellent little work, 'Hooker's Child's Book of Nature.' A new subject, 'The Science of Government and the Rights and Duties of Citizens,' has been introduced into the first grade, to be taught orally by the principal of the school. These lectures, followed by the instruction in political economy given in the high school, will supply a want that is beginning to be considerably felt—the want of preliminary training in dealing with the problems that vex modern society, arising from the complicated relations of land, labor, capital, currency, and government.

"It was felt that oral teaching had been carried to an extreme. Even the subjects of arithmetic and grammar were taught to a great extent without books. Now, this seems to be erroneous. Telling is not teaching. The most prominent fault of teachers is to *tell* their pupils what they should be left to find out for themselves. Besides, school training is but the beginning of the education of life. One of the most valuable acquisition of the scholar is his ability to make the proper use of books in after life. Moreover, a good book is always better than an average teacher. On the whole, teachers were not found capable of presenting these important subjects to their pupils orally, and that mode of teaching would have been disadvantageous to their pupils had the best teachers been found. The Committee is of the opinion that it has secured all the good that can be derived from 'Oral Instruction' by retaining in the course of study definite subjects to be presented in this manner. It is also of the opinion that more will in fact be accomplished, even though the course of study has lost some of its pretentious and high-sounding titles.

"To some it will seem that these changes so confidently recommended by the Committee, and so generally approved by the Board, are steps backward. It is true that we have retraced some of the steps taken by our predecessors, but we had become convinced that those steps had been taken in a wrong direction. New sciences and arts were so clamorous for recognition as a part of the school curriculum—the 'progress' of modern society seemed to demand so imperatively that botany, zoology, mineralogy, telegraphy, physics, chemistry, and phonography should be admitted into the school-room, as at least of equal importance with arithmetic and geography, that educators yielded more or less to these claims, and the consequence has been that in many of our large cities the scheme of instruction has become beautiful and desirable, but, alas—impossible. We have found by experience that, in attempting to teach too much, we have taught nothing successfully; that we have tried to make currant-bushes produce pumpkins—with no satisfactory result.

"In view of these teachings of recent experience the Committee has endeavored to arrange the course of study in such a way that the graduate of our grammar schools shall be able to read intelligently and intelligibly a leading article in a first-class newspaper, to perform the calculations required in business and the ordinary trades, to write a business letter perfect in form and construction, to tell something of the leading countries, cities, rivers, and mountains of the world, and to think rationally about the history and constitution of his country. This is the gist of the matter; seven-eighths of his time in school will be devoted to the accomplishment of this purpose. * * *

"The most important measure passed by the Board of Education is a new

"MODE OF APPOINTING TEACHERS.

"I will premise to what I have to say on this subject the following quotations from the new rules of the Board:

"'*Rules of the Board of Education concerning the Nomination, Appointment, and Election of Teachers.*

"'*Appointment and Election of Teachers.*

"'SEC. 46. Whenever an additional teacher is required, or a vacancy is to be filled, each Director may, in open Board, nominate one candidate for the position, and all nominations so made shall be referred to the Committee on Credentials and Qualifications of Teachers, who shall report thereon at the next regular meeting of the Board. Upon receiving the report of the Committee, the Board shall proceed to appoint one of the candidates nominated to the position. The appointment shall continue for six months, unless sooner revoked by the Board,

"'At the expiration of the period of the appointment, the Board shall proceed to elect such appointee permanently to the position; *provided*, that he or she present to the Board a certificate of success, signed by the Principal of the school, the Deputy Superintendent, and a majority of the

members of the Committee on Classification; but if such appointee fail to present such certificate to the Board, his or her position shall be declared vacant, and a new appointment shall be made.

"'*Committee of Credentials and Qualifications of Teachers.*

"'SEC. 36. The Committee on Credentials and Qualifications of Teachers shall take under consideration all nominations of teachers made in open Board.

"'They shall carefully examine into the merits and qualifications of such nominees, and report to the Board the candidate or candidates whom they consider to be best qualified to fill the position for which the nominations were made.

"'They shall report briefly to the Board the reasons for their recommendations, and no person whose fitness for a position as teacher has not been considered by this Committee, shall be eligible to election to any position as teacher in the Department.'

"By attentively examining the rules you will see that their theory is this:

1. Every Director will put in nomination for each vacancy that may occur the best one of those candidates that may have applied to him.

2. The Committee on Credentials and Qualifications of Teachers will deliberate upon these nominations for the space of two weeks—and will give to one or more of the names presented the sanction of their recommendation.

"3. The Board, by a majority vote of all its members, will appoint one of the candidates recommended by the Committee, or if the Board differs from the judgment of the Committee, it may appoint some one else of the candidates referred to the Committee, but *no new name can be presented and acted upon without reference.*

"At the expiration of a probationary period of six months the candidate must present a certificate of success signed by the Principal of the school, the Deputy Superintendent, and the majority of a different committee, that of classification, when he or she will be finally elected by a majority vote of the entire Board to a position in the department.

"Such is the theory of our mode of appointing teachers. I am pleased to say that there has been enough of the spirit of self-sacrifice in the Board, and enough of devotion to the public good, to secure excellent practical results. With an enormous number of applicants, with an almost irresistible political and personal pressure exerted to influence every decision, I do not hesitate to say that seven-eighths of the appointments have been the best that could possibly be made; while, in the remaining cases, at least good appointments have been made, and the interests of the public have been well served.

"Great credit is due to the members of the Board of Education for adopting a rule in which individual significance is merged into the judgment of the majority. Much praise is due to those who opposed the adoption of the rule, for their graceful submission to disappointment. For the rule adopted by the preceding Board warranted the expectation that they were each to become the autocrats of six schools—the royal dispensers of patronage, the almoners of the bounty of the people. Time and experience have, I think, convinced them all that the mode of managing the department in the respect that prevailed in the last Board, is not only a clear evasion of the law, but is selfish, undignified, and unjust to the public. The Board, as a whole, is worthy of respect and gratitude for the patience with which it has submitted to the additional care and labor brought upon it by the new rule; any labor has seemed light, provided that its object was to secure good teachers for the schools.

"The method by which teachers are appointed by this Board is proudly claimed to be a substantial contribution to good government. If it should ever be perverted, abused, or materially changed, it will be because there is not wisdom and virtue enough in the Board of Education to put into execution a system that is the embodiment of simplicity and purity. * * *

"Gentlemen, I hope that you are convinced that the management of the school department, while liable to errors arising from human imperfection, will compare favorably with that of any other department of the city government; I believe that you realize the importance to this and to the coming generation, of the work in which we, as school officers, are engaged; I am sure that you must feel that the money spent upon the schools is, on the whole, well spent, and that its amount cannot sensibly be diminished without seriously impairing their efficiency; I am confident that, after conferring with the Board of Education in the manner directed by statute, you will readily acknowledge that, in order to maintain the schools in their present high degree of excellence, and to build the school-houses that I have spoken of on a pre-

vious page, it is your duty, next May, to levy for school purposes, the full amount of tax determined by law.

"All of which is respectfully submitted.

"A. L. MANN,

"Supt. of Common Schools."

The points taken up by Deputy Superintendent D. C. Stone were Supervision, Substitutes, Promotions, and mainly Free Text-Books. On this last point Mr. Stone presented an elaborate and able report, strongly urging the necessity and economy of adopting the free text-book plan.

We shall give extracts from the reports of Principals Swett, Reid, Herbst, and O'Connor, at some future time.

Another report presented was an exhaustive and carefully compiled document from the committee on furniture and supplies, John W. Taylor, Chairman. This report was a complete statement of the condition of the furniture, supplies, libraries, etc., of the department. The compilation evidently took considerable time and labor.

Mr. Taylor, though the head of one of the most prominent business houses of this city, devotes a considerable part of his time to school business, notably to his duties on this Committee. His interest in the welfare of the department is active and sincere, and he is continually devising means for educational improvement.

Mr. Taylor has more than a theoretical knowledge of education, having been for ten years a teacher in New Hampshire, Connecticut, and Massachusetts. He is a graduate of Exeter Academy and of Harvard University; and to a cultured mind and liberal education adds a courteous demeanor and engaging manners.

The people are fortunate when such men are entrusted with the guardianship of our schools; and it is a matter of regret that our Boards of Education do not generally contain a greater number of them.

DECEMBER MONTHLIES.

The Thanksgiving number of the New York *Christian Union* contains a stirring letter from Secretary Sherman on the South Carolina troubles; a breezy article by Gail Hamilton; a Star Paper from Henry Ward Beecher; a "Laicus" letter; a Thanksgiving story, "The Praise Meeting at Poncasset," by Eliot McCormick; and the opening chapters of the new and romantic serial, "The Little Belle of Bloomingdale," whose anonymous author, we are told, has a world-wide reputation.

We publish the complete Indexes to both Volumes I and II, with this number of the JOURNAL. Teachers who desire to have their numbers bound, will do well to read our PUBLISHERS' NOTES, on page 11.

THE
PACIFIC SCHOOL & HOME JOURNAL
FOR 1879.

The Publisher of the JOURNAL respectfully refers to the Volumes of 1877 and 1878, as an earnest of the future merit and course of this periodical. He points to the 480 pages in Volumes II, containing the contributions of some of the ablest Educators in the Union, as a token of what may be expected during the coming year. He refers with a pardonable pride to the words of commendation and praise, so generally bestowed by the Press and by Fellow Teachers. Our space is too limited to permit the introduction of more than a few of these testimonials.

"It is able and scholarly."—*Barnes' Educational Monthly.*

"I do not hesitate to say that, as a Teacher's Journal, it cannot be excelled among the monthlies."—*Extract from a letter from Prof. S. R. Winchell, Editor and Proprietor of the Chicago Educational Weekly.*

"It is an ably conducted journal."—*Canada School Journal.*

"There is no abler educational journal in the country."—*Iowa Normal Monthly.*

"It is a live educational journal."—*Supt. J. R. Williamson, Nevada.*

"I consider it the best educational journal in the Union."—*W. B. Chittenden, St. Louis, Mo.*

"The PACIFIC SCHOOL AND HOME JOURNAL is an able and representative periodical. It should be well patronized by the Nevada Teachers."—*Carson (Nev.) Appeal.*

"We recommend the PACIFIC SCHOOL AND HOME JOURNAL to the teachers of Lake County, and to teachers of the State generally."—*Lake County Bee.*

"The JOURNAL deserves the support of every practical teacher."—*O. E. Swain, Grammar Master, Chico.*

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"I could not do without the SCHOOL AND HOME JOURNAL."—*H. F. Courter, San Jose.*

And hundreds more of like tenor, for which we have no space.

The Publisher takes pleasure in announcing that articles from the following prominent writers and educators will appear during 1879:

HON. JOHN SWETT.
JOHN MUIR, the author and naturalist.
PROF. E. W. HILGARD, of the State University.
CHARLES H. SHINN, poet and author.
PROF. GEORGE W. MINNS, Concord, Mass.
PROF. M. M. SCOTT, Tokio, Japan.
PROF. G. V. LEVAUX, Melbourne, Australia.
Superintendent A. L. MANN, of San Francisco.
PROF. H. B. NORTON, of the State Normal School.
CHARLES M. DRAKE, of San Diego. [Who will continue his pungent and enjoyable articles.]
PROF. VOLNEY RATTAN, of the San Francisco Girls' High School.
PROF. W. W. ANDERSON, of the Santa Cruz High School.
PROF. A. W. OLIVER, of the Gilroy High School.
PROF. C. B. TOWLE, of the Vallejo High School.
PROFS. J. B. MCCHESNEY, of Oakland, and WILLIAM WHITE, of San Francisco, who will conduct the departments of Science and Mathematics.
PROF. J. M. GUINN, of Los Angeles.
PROF. INGHAM, of Alameda.
S. S. BOYNTON, of Butte, and a host of others.

OUR DEPARTMENTS,

Such as INTELLIGENCE FROM STATES AND COUNTIES, EXAMINATION QUESTIONS, NOTES AND QUERIES, will be made even more interesting and valuable in the future than in the past.

The JOURNAL will be sent to subscribers on the first of each month, postage prepaid, at $2.00 per year. Single Number, 25 cents. The subscription price should be sent in P. O. Order, U. S. Currency, or in a Registered Letter, addressed to

ALBERT LYSER,

Editor and Proprietor of the PACIFIC SCHOOL AND HOME JOURNAL,

508 Clay Street, San Francisco.